FCC SAR TEST REPORT

FCC ID	:	**A4RG8V0U**
Equipment	:	**Phone**
Applicant	:	**Google LLC** **1600 Amphitheatre Parkway,** **Mountain View, California, 94043 USA**
Standard	:	**FCC 47 CFR Part 2 (2.1093)**

The product was received on Jun. 11, 2021 and testing was started from Nov. 12, 2022 and completed on Nov. 12, 2022. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample provide by manufacturer and the test data has been evaluated in accordance with the test procedures given in 47 CFR Part 2.1093 and FCC KDB and has been pass the FCC requirement.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.

Approved by: Cona Huang / Deputy Manager

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History of this test report

Report No.	Version	Description	Issued Date
FA121931-24B	01	Initial issue of report	Nov. 29, 2022

1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for Google LLC, Phone, are as follows.

Equipment Class	Frequency Band		Highest SAR Summary				Highest Simultaneous Transmission 1g SAR (W/kg)	Highest Simultaneous Transmission 10g SAR (W/kg)
			Head (Separation 0mm)	Body-worn (Separation 10mm)	Hotspot (Separation 10mm)	Product Specific (Separation 0mm)		
			1g SAR (W/kg)			10g SAR (W/kg)		
NII	WLAN	5GHz WLAN	0.96	1.13	0.54	2.04	1.56	2.97
Date of Testing:			2022/11/12					

Sporton Lab is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code: 1190) and the FCC designation No. TW1190 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC test. This device is in compliance with Specific Absorption Rate (SAR) for general population/uncontrolled exposure limits (1.6 W/kg for Partial-Body 1g SAR, 4.0 W/kg for Product Specific 10g SAR) specified in FCC 47 CFR part 2 (2.1093) and ANSI/IEEE C95.1-1992, and had been tested in accordance with the measurement methods and procedures specified in IEEE 1528-2013 and FCC KDB publications.

Reviewed by: Jason Wang

Report Producer: Paula Chen

2. Equipment Under Test (EUT) Information

2.1 General Information

Product Feature & Specification	
Equipment Name	Phone
FCC ID	A4RG8V0U
SN	18171FDEE000JA
Wireless Technology and Frequency Range	GSM850: 824.2 MHz ~ 848.8 MHz GSM1900: 1850.2 MHz ~ 1909.8 MHz WCDMA Band II: 1850 MHz ~ 1910 MHz WCDMA Band IV: 1710 MHz ~ 1755 MHz WCDMA Band V: 824 MHz ~ 849 MHz LTE Band 2: 1850 MHz ~ 1910 MHz LTE Band 4: 1710 MHz ~ 1755 MHz LTE Band 5: 824 MHz ~ 849 MHz LTE Band 7: 2500 MHz ~ 2570 MHz LTE Band 12: 699 MHz ~ 716 MHz LTE Band 13: 777 MHz ~ 787 MHz LTE Band 14: 788 MHz ~ 798 MHz LTE Band 17: 704 MHz ~ 716 MHz LTE Band 25: 1850 MHz ~ 1915 MHz LTE Band 26: 814 MHz ~ 849 MHz LTE Band 30: 2305 MHz ~ 2315 MHz LTE Band 38: 2570 MHz ~ 2620 MHz LTE Band 41: 2496 MHz ~ 2690 MHz LTE Band 48: 3550 MHz ~ 3700 MHz LTE Band 66: 1710 MHz ~ 1780 MHz LTE Band 71: 663 MHz ~ 698 MHz 5G NR n2 : 1850 MHz ~ 1910 MHz 5G NR n5 : 824 MHz ~ 849 MHz 5G NR n7 : 2500 MHz ~ 2570 MHz 5G NR n12 : 699 MHz ~ 716 MHz 5G NR n25 : 1850 MHz ~ 1915 MHz 5G NR n30 : 2305 MHz ~ 2315 MHz 5G NR n38 : 2570 MHz ~ 2620 MHz 5G NR n41 : 2496 MHz ~ 2690 MHz 5G NR n66 : 1710 MHz ~ 1780 MHz 5G NR n71: 663 MHz ~ 698 MHz 5G NR n77 : 3450MHz ~ 3550MHz, 3700 MHz ~ 3980 MHz 5G NR n258 : 24.25 GHz~24.45 GHz, 24.75GHz ~25.25GHz 5G NR n260 : 37 GHz~40 GHz 5G NR n261 : 27.5 GHz~28.35 GHz WLAN 2.4 GHz Band: 2400 MHz ~ 2483.5 MHz WLAN 5.2 GHz Band: 5150 MHz ~ 5250 MHz WLAN 5.3 GHz Band: 5250 MHz ~ 5350 MHz WLAN 5.6 GHz Band: 5470 MHz ~ 5725 MHz WLAN 5.8 GHz Band: 5725 MHz ~ 5850 MHz WLAN 5.8G UNII4 Band: 5850 MHz ~ 5895 MHz WLAN 6E: 5925 MHz ~ 6425 MHz, 6425 MHz ~ 6525 MHz, 6525 MHz ~ 6875 MHz, 6875 MHz ~ 7125 MHz Bluetooth: 2400 MHz ~ 2483.5 MHz NFC : 13.56 MHz WPT: 110KHz ~ 148.5KHz UWB: 6489.6 MHz, 7987.2 MHz
Mode	GSM/GPRS/EGPRS RMC/AMR 12.2Kbps HSDPA, HSUPA LTE: QPSK, 16QAM, 64QAM, 256QAM 5G NR: DFT-s-OFDM/CP-OFDM, Pi/2 BPSK/QPSK/16QAM/64QAM/256QAM WLAN: 802.11a/b/g/n/ac/ax HT20/HT40/VHT20/VHT40/VHT80/VHT160/HE20/HE40/HE80/HE160 Bluetooth BR/EDR/LE NFC:ASK WPT ASK UWB: BPM-BPSK
GSM / (E)GPRS Transfer mode	Class B – EUT cannot support Packet Switched and Circuit Switched Network simultaneously but can automatically switch between Packet and Circuit Switched Network.

Remark:
1. Variant report to enable WiFi 5.8G UNII4 operation, in this report only evaluation WiFi 5.8G UNII4 RF Exposure
2. The other transmitter RF Exposure evaluation refers to Sporton SAR Report No.: FA121931-04C for GSM/UMTS/LTE/FR1/WLAN/BT and FA121931-04E for FR2.
3. The worst case WLAN SAR results between report no.: FA121931-04C and FA121931-24B are using for Sim-Tx analysis with other transmitters. Therefore, in report section 14 and 15 summations represent the absolute worst cases for Sim-Tx analysis for this device.

<WLAN Maximum Power>

General Note:

1. The device implements the power management for WLAN SAR compliance for different exposure conditions and user cases. When the device is operated against the user's head, power index 1-4 are used; when the device is operated in the body-worn or extremity condition, power index 5-9 are used. In each exposure condition, the power selection is based on the user cases as described in Section 13 of this report. Full details about the proprietary power management decision are illustrated in the operational description.
2. 4+3(4): power level on antenna 4, when device operated in MIMO mode (4+3)

<Mobile Condition – Power index 0 >

Burst Average Power (dBm)						
Transmit Antenna				MIMO		
	Mode	Channel	Frequency (MHz)	Ant 7+3(7) Tune-Up Limit	Ant 7+3(3) Tune-Up Limit	Ant 7+3 Tune-Up Limit
5.8GHz WLAN	802.11a 6Mbps	169	5845	18.50	18.50	21.50
		173	5865	19.00	19.00	22.00
		177	5885	19.00	19.00	22.00
	802.11n-HT20 MCS0	169	5845	19.50	19.50	22.50
		173	5865	19.50	19.50	22.50
		177	5885	19.00	19.00	22.00
	802.11n-HT40 MCS0	167	5835	21.00	21.00	24.00
		175	5875	21.00	21.00	24.00
	802.11ac-VHT20 MCS0	169	5845	19.50	19.50	22.50
		173	5865	19.50	19.50	22.50
		177	5885	19.00	19.00	22.00
	802.11ac-VHT40 MCS0	167	5835	21.00	21.00	24.00
		175	5875	21.00	21.00	24.00
	802.11ac-VHT80 MCS0	171	5855	21.00	21.00	24.00
	802.11ax-HE20 MCS0	169	5845	19.50	19.50	22.50
		173	5865	20.00	20.00	23.00
		177	5885	19.50	19.50	22.50
	802.11ax-HE40 MCS0	167	5835	20.00	20.00	23.00
		175	5875	20.00	20.00	23.00
	802.11ax-HE80 MCS0	171	5855	20.00	20.00	23.00

<Power Index 1>

Burst Average Power (dBm)						
Transmit Antenna				MIMO		
	Mode	Channel	Frequency (MHz)	Ant 7+3(7) Tune-Up Limit	Ant 7+3(3) Tune-Up Limit	Ant 7+3 Tune-Up Limit
5.8GHz WLAN	802.11a 6Mbps	169	5845	18.50	18.50	21.50
		173	5865	19.00	19.00	22.00
		177	5885	19.00	19.00	22.00
	802.11n-HT20 MCS0	169	5845	19.50	19.50	22.50
		173	5865	19.50	19.50	22.50
		177	5885	19.00	19.00	22.00
	802.11n-HT40 MCS0	167	5835	21.00	21.00	24.00
		175	5875	21.00	21.00	24.00
	802.11ac-VHT20 MCS0	169	5845	19.50	19.50	22.50
		173	5865	19.50	19.50	22.50
		177	5885	19.00	19.00	22.00
	802.11ac-VHT40 MCS0	167	5835	21.00	21.00	24.00
		175	5875	21.00	21.00	24.00
	802.11ac-VHT80 MCS0	171	5855	21.00	21.00	24.00
	802.11ax-HE20 MCS0	169	5845	19.50	19.50	22.50
		173	5865	20.00	20.00	23.00
		177	5885	19.50	19.50	22.50
	802.11ax-HE40 MCS0	167	5835	20.00	20.00	23.00
		175	5875	20.00	20.00	23.00
	802.11ax-HE80 MCS0	171	5855	20.00	20.00	23.00

<Power Index 2>

Burst Average Power (dBm)						
Transmit Antenna				MIMO		
	Mode	Channel	Frequency (MHz)	Ant 7+3(7) Tune-Up Limit	Ant 7+3(3) Tune-Up Limit	Ant 7+3 Tune-Up Limit
5.8GHz WLAN	802.11a 6Mbps	169	5845	18.50	18.50	21.50
		173	5865	19.00	19.00	22.00
		177	5885	19.00	19.00	22.00
	802.11n-HT20 MCS0	169	5845	19.50	19.50	22.50
		173	5865	19.50	19.50	22.50
		177	5885	19.00	19.00	22.00
	802.11n-HT40 MCS0	167	5835	21.00	21.00	24.00
		175	5875	21.00	21.00	24.00
	802.11ac-VHT20 MCS0	169	5845	19.50	19.50	22.50
		173	5865	19.50	19.50	22.50
		177	5885	19.00	19.00	22.00
	802.11ac-VHT40 MCS0	167	5835	21.00	21.00	24.00
		175	5875	21.00	21.00	24.00
	802.11ac-VHT80 MCS0	171	5855	21.00	21.00	24.00
	802.11ax-HE20 MCS0	169	5845	19.50	19.50	22.50
		173	5865	20.00	20.00	23.00
		177	5885	19.50	19.50	22.50
	802.11ax-HE40 MCS0	167	5835	20.00	20.00	23.00
		175	5875	20.00	20.00	23.00
	802.11ax-HE80 MCS0	171	5855	20.00	20.00	23.00

<Power Index 3>

Burst Average Power (dBm)						
Transmit Antenna				MIMO		
	Mode	Channel	Frequency (MHz)	Ant 7+3(7) Tune-Up Limit	Ant 7+3(3) Tune-Up Limit	Ant 7+3 Tune-Up Limit
5.8GHz WLAN	802.11a 6Mbps	169	5845	18.50	18.50	21.50
		173	5865	19.00	19.00	22.00
		177	5885	19.00	19.00	22.00
	802.11n-HT20 MCS0	169	5845	19.50	19.50	22.50
		173	5865	19.50	19.50	22.50
		177	5885	19.00	19.00	22.00
	802.11n-HT40 MCS0	167	5835	19.50	19.50	22.50
		175	5875	19.50	19.50	22.50
	802.11ac-VHT20 MCS0	169	5845	19.50	19.50	22.50
		173	5865	19.50	19.50	22.50
		177	5885	19.00	19.00	22.00
	802.11ac-VHT40 MCS0	167	5835	19.50	19.50	22.50
		175	5875	19.50	19.50	22.50
	802.11ac-VHT80 MCS0	171	5855	19.50	19.50	22.50
	802.11ax-HE20 MCS0	169	5845	19.50	19.50	22.50
		173	5865	19.50	19.50	22.50
		177	5885	19.50	19.50	22.50
	802.11ax-HE40 MCS0	167	5835	19.50	19.50	22.50
		175	5875	19.50	19.50	22.50
	802.11ax-HE80 MCS0	171	5855	19.50	19.50	22.50

<Power Index 4>

Burst Average Power (dBm)						
Transmit Antenna				MIMO		
	Mode	Channel	Frequency (MHz)	Ant 7+3(7) Tune-Up Limit	Ant 7+3(3) Tune-Up Limit	Ant 7+3 Tune-Up Limit
5.8GHz WLAN	802.11a 6Mbps	169	5845	18.50	18.50	21.50
		173	5865	19.00	19.00	22.00
		177	5885	19.00	19.00	22.00
	802.11n-HT20 MCS0	169	5845	19.50	19.50	22.50
		173	5865	19.50	19.50	22.50
		177	5885	19.00	19.00	22.00
	802.11n-HT40 MCS0	167	5835	19.50	19.50	22.50
		175	5875	19.50	19.50	22.50
	802.11ac-VHT20 MCS0	169	5845	19.50	19.50	22.50
		173	5865	19.50	19.50	22.50
		177	5885	19.00	19.00	22.00
	802.11ac-VHT40 MCS0	167	5835	19.50	19.50	22.50
		175	5875	19.50	19.50	22.50
	802.11ac-VHT80 MCS0	171	5855	19.50	19.50	22.50
	802.11ax-HE20 MCS0	169	5845	19.50	19.50	22.50
		173	5865	19.50	19.50	22.50
		177	5885	19.50	19.50	22.50
	802.11ax-HE40 MCS0	167	5835	19.50	19.50	22.50
		175	5875	19.50	19.50	22.50
	802.11ax-HE80 MCS0	171	5855	19.50	19.50	22.50

<Power Index 5>

Burst Average Power (dBm)						
Transmit Antenna				MIMO		
	Mode	Channel	Frequency (MHz)	Ant 7+3(7) Tune-Up Limit	Ant 7+3(3) Tune-Up Limit	Ant 7+3 Tune-Up Limit
5.8GHz WLAN	802.11a 6Mbps	169	5845	18.50	18.50	21.50
		173	5865	19.00	19.00	22.00
		177	5885	19.00	19.00	22.00
	802.11n-HT20 MCS0	169	5845	19.00	19.00	22.00
		173	5865	19.00	19.00	22.00
		177	5885	19.00	19.00	22.00
	802.11n-HT40 MCS0	167	5835	19.00	19.00	22.00
		175	5875	19.00	19.00	22.00
	802.11ac-VHT20 MCS0	169	5845	19.00	19.00	22.00
		173	5865	19.00	19.00	22.00
		177	5885	19.00	19.00	22.00
	802.11ac-VHT40 MCS0	167	5835	19.00	19.00	22.00
		175	5875	19.00	19.00	22.00
	802.11ac-VHT80 MCS0	171	5855	19.00	19.00	22.00
	802.11ax-HE20 MCS0	169	5845	19.00	19.00	22.00
		173	5865	19.00	19.00	22.00
		177	5885	19.00	19.00	22.00
	802.11ax-HE40 MCS0	167	5835	19.00	19.00	22.00
		175	5875	19.00	19.00	22.00
	802.11ax-HE80 MCS0	171	5855	19.00	19.00	22.00

<Power Index 6>

Burst Average Power (dBm)						
Transmit Antenna				MIMO		
	Mode	Channel	Frequency (MHz)	Ant 7+3(7) Tune-Up Limit	Ant 7+3(3) Tune-Up Limit	Ant 7+3 Tune-Up Limit
5.8GHz WLAN	802.11a 6Mbps	169	5845	18.50	18.50	21.50
		173	5865	18.50	18.50	21.50
		177	5885	18.50	18.50	21.50
	802.11n-HT20 MCS0	169	5845	18.50	18.50	21.50
		173	5865	18.50	18.50	21.50
		177	5885	18.50	18.50	21.50
	802.11n-HT40 MCS0	167	5835	18.50	18.50	21.50
		175	5875	18.50	18.50	21.50
	802.11ac-VHT20 MCS0	169	5845	18.50	18.50	21.50
		173	5865	18.50	18.50	21.50
		177	5885	18.50	18.50	21.50
	802.11ac-VHT40 MCS0	167	5835	18.50	18.50	21.50
		175	5875	18.50	18.50	21.50
	802.11ac-VHT80 MCS0	171	5855	18.50	18.50	21.50
	802.11ax-HE20 MCS0	169	5845	18.50	18.50	21.50
		173	5865	18.50	18.50	21.50
		177	5885	18.50	18.50	21.50
	802.11ax-HE40 MCS0	167	5835	18.50	18.50	21.50
		175	5875	18.50	18.50	21.50
	802.11ax-HE80 MCS0	171	5855	18.50	18.50	21.50

<Power Index 7>

Burst Average Power (dBm)						
Transmit Antenna				MIMO		
	Mode	Channel	Frequency (MHz)	Ant 7+3(7) Tune-Up Limit	Ant 7+3(3) Tune-Up Limit	Ant 7+3 Tune-Up Limit
5.8GHz WLAN	802.11a 6Mbps	169	5845	16.50	16.50	19.50
		173	5865	16.50	16.50	19.50
		177	5885	16.50	16.50	19.50
	802.11n-HT20 MCS0	169	5845	16.50	16.50	19.50
		173	5865	16.50	16.50	19.50
		177	5885	16.50	16.50	19.50
	802.11n-HT40 MCS0	167	5835	16.50	16.50	19.50
		175	5875	16.50	16.50	19.50
	802.11ac-VHT20 MCS0	169	5845	16.50	16.50	19.50
		173	5865	16.50	16.50	19.50
		177	5885	16.50	16.50	19.50
	802.11ac-VHT40 MCS0	167	5835	16.50	16.50	19.50
		175	5875	16.50	16.50	19.50
	802.11ac-VHT80 MCS0	171	5855	16.50	16.50	19.50
	802.11ax-HE20 MCS0	169	5845	16.50	16.50	19.50
		173	5865	16.50	16.50	19.50
		177	5885	16.50	16.50	19.50
	802.11ax-HE40 MCS0	167	5835	16.50	16.50	19.50
		175	5875	16.50	16.50	19.50
	802.11ax-HE80 MCS0	171	5855	16.50	16.50	19.50

<Power Index 8>

Burst Average Power (dBm)						
Transmit Antenna				MIMO		
	Mode	Channel	Frequency (MHz)	Ant 7+3(7) Tune-Up Limit	Ant 7+3(3) Tune-Up Limit	Ant 7+3 Tune-Up Limit
5.8GHz WLAN	802.11a 6Mbps	169	5845	15.50	15.50	18.50
		173	5865	15.50	15.50	18.50
		177	5885	15.50	15.50	18.50
	802.11n-HT20 MCS0	169	5845	15.50	15.50	18.50
		173	5865	15.50	15.50	18.50
		177	5885	15.50	15.50	18.50
	802.11n-HT40 MCS0	167	5835	15.50	15.50	18.50
		175	5875	15.50	15.50	18.50
	802.11ac-VHT20 MCS0	169	5845	15.50	15.50	18.50
		173	5865	15.50	15.50	18.50
		177	5885	15.50	15.50	18.50
	802.11ac-VHT40 MCS0	167	5835	15.50	15.50	18.50
		175	5875	15.50	15.50	18.50
	802.11ac-VHT80 MCS0	171	5855	15.50	15.50	18.50
	802.11ax-HE20 MCS0	169	5845	15.50	15.50	18.50
		173	5865	15.50	15.50	18.50
		177	5885	15.50	15.50	18.50
	802.11ax-HE40 MCS0	167	5835	15.50	15.50	18.50
		175	5875	15.50	15.50	18.50
	802.11ax-HE80 MCS0	171	5855	15.50	15.50	18.50

<Power Index 9>

Burst Average Power (dBm)						
Transmit Antenna				MIMO		
	Mode	Channel	Frequency (MHz)	Ant 7+3(7) Tune-Up Limit	Ant 7+3(3) Tune-Up Limit	Ant 7+3 Tune-Up Limit
5.8GHz WLAN	802.11a 6Mbps	169	5845	15.50	15.50	18.50
		173	5865	15.50	15.50	18.50
		177	5885	15.50	15.50	18.50
	802.11n-HT20 MCS0	169	5845	15.50	15.50	18.50
		173	5865	15.50	15.50	18.50
		177	5885	15.50	15.50	18.50
	802.11n-HT40 MCS0	167	5835	15.50	15.50	18.50
		175	5875	15.50	15.50	18.50
	802.11ac-VHT20 MCS0	169	5845	15.50	15.50	18.50
		173	5865	15.50	15.50	18.50
		177	5885	15.50	15.50	18.50
	802.11ac-VHT40 MCS0	167	5835	15.50	15.50	18.50
		175	5875	15.50	15.50	18.50
	802.11ac-VHT80 MCS0	171	5855	15.50	15.50	18.50
	802.11ax-HE20 MCS0	169	5845	15.50	15.50	18.50
		173	5865	15.50	15.50	18.50
		177	5885	15.50	15.50	18.50
	802.11ax-HE40 MCS0	167	5835	15.50	15.50	18.50
		175	5875	15.50	15.50	18.50
	802.11ax-HE80 MCS0	171	5855	15.50	15.50	18.50

3. Guidance Applied

The Specific Absorption Rate (SAR) testing specification, method, and procedure for this device is in accordance with the following standards, the below KDB standard may not including in the TAF code without accreditation.

- FCC 47 CFR Part 2 (2.1093)
- ANSI/IEEE C95.1-1992
- IEEE 1528-2013
- FCC KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r04
- FCC KDB 865664 D02 SAR Reporting v01r02
- FCC KDB 447498 D01 General RF Exposure Guidance v06
- FCC KDB 648474 D04 SAR Evaluation Considerations for Wireless Handsets v01r03
- FCC KDB 248227 D01 802.11 Wi-Fi SAR v02r02
- FCC KDB 941225 D01 3G SAR Procedures v03r01
- FCC KDB 941225 D05 SAR for LTE Devices v02r05
- FCC KDB 941225 D05A Rel.10 LTE SAR Test Guidance v01r02
- FCC KDB 941225 D06 Hotspot Mode SAR v02r01
- FCC KDB 941225 D07 UMPC Mini Tablet v01r02

4. RF Exposure Limits

4.1 Uncontrolled Environment

Uncontrolled Environments are defined as locations where there is the exposure of individuals who have no knowledge or control of their exposure. The general population/uncontrolled exposure limits are applicable to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Members of the general public would come under this category when exposure is not employment-related; for example, in the case of a wireless transmitter that exposes persons in its vicinity.

4.2 Controlled Environment

Controlled Environments are defined as locations where there is exposure that may be incurred by persons who are aware of the potential for exposure, (i.e. as a result of employment or occupation). In general, occupational/controlled exposure limits are applicable to situations in which persons are exposed as a consequence of their employment, who have been made fully aware of the potential for exposure and can exercise control over their exposure. The exposure category is also applicable when the exposure is of a transient nature due to incidental passage through a location where the exposure levels may be higher than the general population/uncontrolled limits, but the exposed person is fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Limits for Occupational/Controlled Exposure (W/kg)

Whole-Body	Partial-Body	Hands, Wrists, Feet and Ankles
0.4	8.0	20.0

Limits for General Population/Uncontrolled Exposure (W/kg)

Whole-Body	Partial-Body	Hands, Wrists, Feet and Ankles
0.08	1.6	4.0

1. Whole-Body SAR is averaged over the entire body, partial-body SAR is averaged over any 1gram of tissue defined as a tissue volume in the shape of a cube. SAR for hands, wrists, feet and ankles is averaged over any 10 grams of tissue defined as a tissue volume in the shape of a cube.

4.3 RF Exposure limit for above 6GHz

According to ANSI/IEEE C95.1-1992, the criteria listed in Table 1 shall be used to evaluate the environmental impact of human exposure to radio frequency (RF) radiation as specified in §1.1310.

Peak Spatially Averaged Power Density was evaluated over a circular area of 4cm^2 per interim FCC Guidance for near-field power density evaluations per October 2018 TCB Workshop notes

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3-3.0	614	1.63	*(100)	6
3.0-30	1842/f	4.89/f	*(900/f2)	6
30-300	61.4	0.163	1.0	6
300-1500			f/300	6
1500-100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f2)	30
30-300	27.5	0.073	0.2	30
300-1500			f/1500	30
1500-100,000			1.0	30

5. Specific Absorption Rate (SAR)

5.1 Introduction

SAR is related to the rate at which energy is absorbed per unit mass in an object exposed to a radio field. The SAR distribution in a biological body is complicated and is usually carried out by experimental techniques or numerical modeling. The standard recommends limits for two tiers of groups, occupational/controlled and general population/uncontrolled, based on a person's awareness and ability to exercise control over his or her exposure. In general, occupational/controlled exposure limits are higher than the limits for general population/uncontrolled.

5.2 SAR Definition

The SAR definition is the time derivative (rate) of the incremental energy (dW) absorbed by (dissipated in) an incremental mass (dm) contained in a volume element (dv) of a given density (ρ). The equation description is as below:

$$\mathbf{SAR} = \frac{\mathbf{d}}{\mathbf{dt}}\left(\frac{\mathbf{dW}}{\mathbf{dm}}\right) = \frac{\mathbf{d}}{\mathbf{dt}}\left(\frac{\mathbf{dW}}{\boldsymbol{\rho}\mathbf{dv}}\right)$$

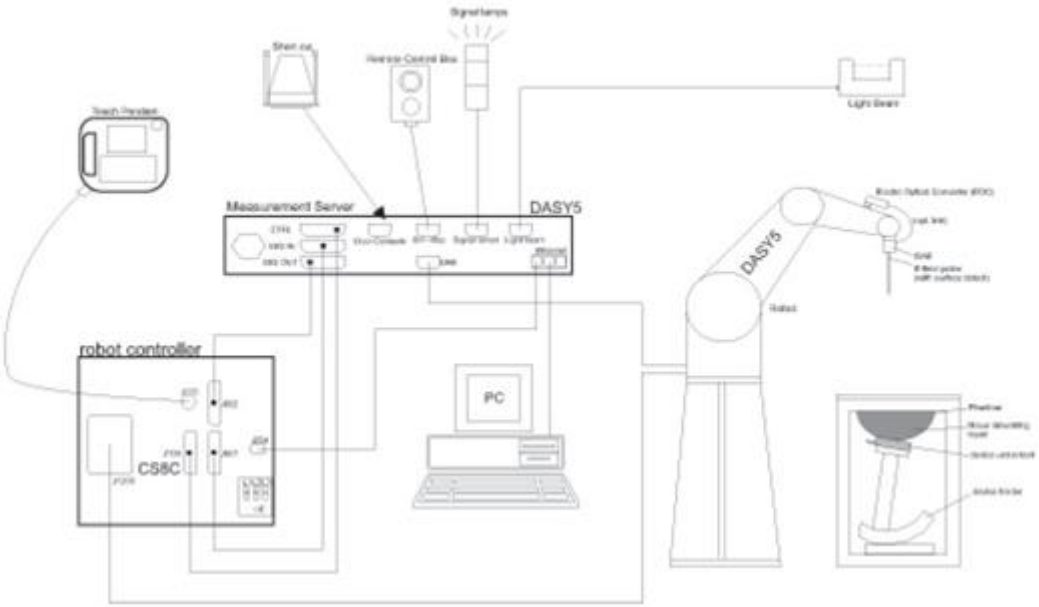
SAR is expressed in units of Watts per kilogram (W/kg)

$$\mathbf{SAR} = \frac{\boldsymbol{\sigma}|\mathbf{E}|^2}{\boldsymbol{\rho}}$$

Where: σ is the conductivity of the tissue, ρ is the mass density of the tissue and E is the RMS electrical field strength.

6. System Description and Setup

The DASY system used for performing compliance tests consists of the following items:



- A standard high precision 6-axis robot with controller, teach pendant and software. An arm extension for accommodating the data acquisition electronics (DAE).
- An isotropic Field probe optimized and calibrated for the targeted measurement.
- A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
- The Electro-optical converter (EOC) performs the conversion from optical to electrical signals for the digital communication to the DAE. To use optical surface detection, a special version of the EOC is required. The EOC signal is transmitted to the measurement server.
- The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- The Light Beam used is for probe alignment. This improves the (absolute) accuracy of the probe positioning.
- A computer running WinXP or Win7 and the DASY5 software.
- Remote control and teach pendant as well as additional circuitry for robot safety such as warning lamps, etc.
- The phantom, the device holder and other accessories according to the targeted measurement.

6.1 Test Site Location

The SAR measurement facilities used to collect data are within both Sporton Lab list below test site location are accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code: 1190 and 3786) and the FCC designation No. TW1190 and TW3786 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC test. In system validation list test site number, if the test site number is include in the Wensan Laboratory, that's mean the test data are subcontracted to Sporton International Inc. Wensan Laboratory.

Test Site	EMC & Wireless Communications Laboratory		Wensan Laboratory		
Test Site Location	TW1190 No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333, Taiwan		TW3786 No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City 333010, Taiwan		
Test Site No.	SAR01-HY	SAR03-HY	SAR08-HY	SAR09-HY	SAR15-HY
	SAR04-HY	SAR05-HY	SAR11-HY	SAR12-HY	
	SAR06-HY	SAR10-HY	SAR13-HY	SAR14-HY	

6.2 E-Field Probe

The SAR measurement is conducted with the dosimetric probe (manufactured by SPEAG).The probe is specially designed and calibrated for use in liquid with high permittivity. The dosimetric probe has special calibration in liquid at different frequency. This probe has a built in optical surface detection system to prevent from collision with phantom.

<ES3DV3 Probe>

Construction	Symmetric design with triangular core Interleaved sensors Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)	
Frequency	10 MHz – 4 GHz; Linearity: ±0.2 dB (30 MHz – 4 GHz)	
Directivity	±0.2 dB in TSL (rotation around probe axis) ±0.3 dB in TSL (rotation normal to probe axis)	
Dynamic Range	5 µW/g – >100 mW/g; Linearity: ±0.2 dB	
Dimensions	Overall length: 337 mm (tip: 20 mm) Tip diameter: 3.9 mm (body: 12 mm) Distance from probe tip to dipole centers: 3.0 mm	

<EX3DV4 Probe>

Construction	Symmetric design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)	
Frequency	10 MHz – >6 GHz Linearity: ±0.2 dB (30 MHz – 6 GHz)	
Directivity	±0.3 dB in TSL (rotation around probe axis) ±0.5 dB in TSL (rotation normal to probe axis)	
Dynamic Range	10 µW/g – >100 mW/g Linearity: ±0.2 dB (noise: typically <1 µW/g)	
Dimensions	Overall length: 337 mm (tip: 20 mm) Tip diameter: 2.5 mm (body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm	

6.3 Data Acquisition Electronics (DAE)

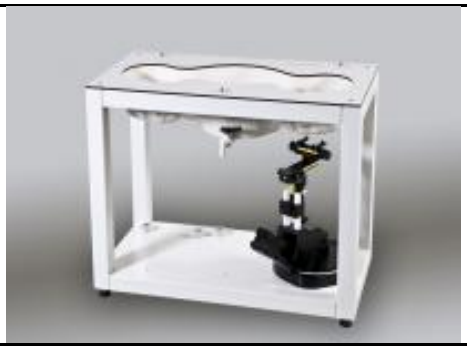
The data acquisition electronics (DAE) consists of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converter and a command decoder and control logic unit. Transmission to the measurement server is accomplished through an optical downlink for data and status information as well as an optical uplink for commands and the clock.

The input impedance of the DAE is 200 MOhm; the inputs are symmetrical and floating. Common mode rejection is above 80 dB.

Fig 5.1 Photo of DAE

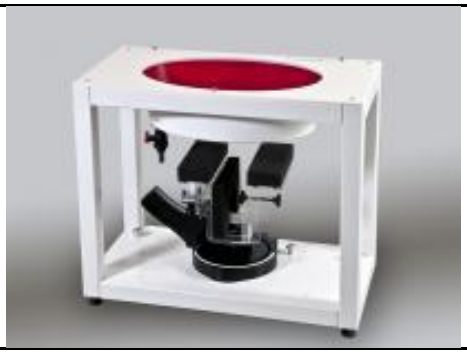
6.4 Phantom

<SAM Twin Phantom>

Shell Thickness	2 ± 0.2 mm; Center ear point: 6 ± 0.2 mm	
Filling Volume	Approx. 25 liters	
Dimensions	Length: 1000 mm; Width: 500 mm; Height: adjustable feet	
Measurement Areas	Left Hand, Right Hand, Flat Phantom	

The bottom plate contains three pair of bolts for locking the device holder. The device holder positions are adjusted to the standard measurement positions in the three sections. A white cover is provided to tap the phantom during off-periods to prevent water evaporation and changes in the liquid parameters. On the phantom top, three reference markers are provided to identify the phantom position with respect to the robot.

<ELI Phantom>

Shell Thickness	2 ± 0.2 mm (sagging: <1%)	
Filling Volume	Approx. 30 liters	
Dimensions	Major ellipse axis: 600 mm Minor axis: 400 mm	

The ELI phantom is intended for compliance testing of handheld and body-mounted wireless devices in the frequency range of 30 MHz to 6 GHz. ELI4 is fully compatible with standard and all known tissue simulating liquids.

6.5 Device Holder

<Mounting Device for Hand-Held Transmitter>

In combination with the Twin SAM V5.0/V5.0c or ELI phantoms, the Mounting Device for Hand-Held Transmitters enables rotation of the mounted transmitter device to specified spherical coordinates. At the heads, the rotation axis is at the ear opening. Transmitter devices can be easily and accurately positioned according to IEC 62209-1, IEEE 1528, FCC, or other specifications. The device holder can be locked for positioning at different phantom sections (left head, right head, flat). And upgrade kit to Mounting Device to enable easy mounting of wider devices like big smart-phones, e-books, small tablets, etc. It holds devices with width up to 140 mm.

Mounting Device for Hand-Held Transmitters

Mounting Device Adaptor for Wide-Phones

<Mounting Device for Laptops and other Body-Worn Transmitters>

The extension is lightweight and made of POM, acrylic glass and foam. It fits easily on the upper part of the mounting device in place of the phone positioned. The extension is fully compatible with the SAM Twin and ELI phantoms.

Mounting Device for Laptops

7. Measurement Procedures

The measurement procedures are as follows:

<Conducted power measurement>

(a) For WWAN power measurement, use base station simulator to configure EUT WWAN transmission in conducted connection with RF cable, at maximum power in each supported wireless interface and frequency band.
(b) Read the WWAN RF power level from the base station simulator.
(c) For WLAN/BT power measurement, use engineering software to configure EUT WLAN/BT continuously transmission, at maximum RF power in each supported wireless interface and frequency band
(d) Connect EUT RF port through RF cable to the power meter, and measure WLAN/BT output power

<SAR measurement>

(a) Use base station simulator to configure EUT WWAN transmission in radiated connection, and engineering software to configure EUT WLAN/BT continuously transmission, at maximum RF power, in the highest power channel.
(b) Place the EUT in the positions as Appendix D demonstrates.
(c) Set scan area, grid size and other setting on the DASY software.
(d) Measure SAR results for the highest power channel on each testing position.
(e) Find out the largest SAR result on these testing positions of each band
(f) Measure SAR results for other channels in worst SAR testing position if the reported SAR of highest power channel is larger than 0.8 W/kg

According to the test standard, the recommended procedure for assessing the peak spatial-average SAR value consists of the following steps:

(a) Power reference measurement
(b) Area scan
(c) Zoom scan
(d) Power drift measurement

7.1 Spatial Peak SAR Evaluation

The procedure for spatial peak SAR evaluation has been implemented according to the test standard. It can be conducted for 1g and 10g, as well as for user-specific masses. The DASY software includes all numerical procedures necessary to evaluate the spatial peak SAR value.

The base for the evaluation is a "cube" measurement. The measured volume must include the 1g and 10g cubes with the highest averaged SAR values. For that purpose, the center of the measured volume is aligned to the interpolated peak SAR value of a previously performed area scan.

The entire evaluation of the spatial peak values is performed within the post-processing engine (SEMCAD). The system always gives the maximum values for the 1g and 10g cubes. The algorithm to find the cube with highest averaged SAR is divided into the following stages:

(a) Extraction of the measured data (grid and values) from the Zoom Scan
(b) Calculation of the SAR value at every measurement point based on all stored data (A/D values and measurement parameters)
(c) Generation of a high-resolution mesh within the measured volume
(d) Interpolation of all measured values form the measurement grid to the high-resolution grid
(e) Extrapolation of the entire 3-D field distribution to the phantom surface over the distance from sensor to surface
(f) Calculation of the averaged SAR within masses of 1g and 10g

7.2 Power Reference Measurement

The Power Reference Measurement and Power Drift Measurements are for monitoring the power drift of the device under test in the batch process. The minimum distance of probe sensors to surface determines the closest measurement point to phantom surface. This distance cannot be smaller than the distance of sensor calibration points to probe tip as defined in the probe properties.

7.3 Area Scan

The area scan is used as a fast scan in two dimensions to find the area of high field values, before doing a fine measurement around the hot spot. The sophisticated interpolation routines implemented in DASY software can find the maximum found in the scanned area, within a range of the global maximum. The range (in dB0 is specified in the standards for compliance testing. For example, a 2 dB range is required in IEEE standard 1528 and IEC 62209 standards, whereby 3 dB is a requirement when compliance is assessed in accordance with the ARIB standard (Japan), if only one zoom scan follows the area scan, then only the absolute maximum will be taken as reference. For cases where multiple maximums are detected, the number of zoom scans has to be increased accordingly.

Area scan parameters extracted from FCC KDB 865664 D01v01r04 SAR measurement 100 MHz to 6 GHz.

	≤ 3 GHz	> 3 GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface	5 ± 1 mm	½·δ·ln(2) ± 0.5 mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location	30° ± 1°	20° ± 1°
Maximum area scan spatial resolution: Δx_{Area}, Δy_{Area}	≤ 2 GHz: ≤ 15 mm 2 – 3 GHz: ≤ 12 mm	3 – 4 GHz: ≤ 12 mm 4 – 6 GHz: ≤ 10 mm
	When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be ≤ the corresponding x or y dimension of the test device with at least one measurement point on the test device.	

7.4 Zoom Scan

Zoom scans are used assess the peak spatial SAR values within a cubic averaging volume containing 1 gram and 10 gram of simulated tissue. The zoom scan measures points (refer to table below) within a cube shoes base faces are centered on the maxima found in a preceding area scan job within the same procedure. When the measurement is done, the zoom scan evaluates the averaged SAR for 1 gram and 10 gram and displays these values next to the job's label.

Zoom scan parameters extracted from FCC KDB 865664 D01v01r04 SAR measurement 100 MHz to 6 GHz.

			≤ 3 GHz	> 3 GHz
Maximum zoom scan spatial resolution: Δx_{Zoom}, Δy_{Zoom}			≤ 2 GHz: ≤ 8 mm 2 – 3 GHz: ≤ 5 mm*	3 – 4 GHz: ≤ 5 mm* 4 – 6 GHz: ≤ 4 mm*
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: $\Delta z_{Zoom}(n)$		≤ 5 mm	3 – 4 GHz: ≤ 4 mm 4 – 5 GHz: ≤ 3 mm 5 – 6 GHz: ≤ 2 mm
	graded grid	$\Delta z_{Zoom}(1)$: between 1st two points closest to phantom surface	≤ 4 mm	3 – 4 GHz: ≤ 3 mm 4 – 5 GHz: ≤ 2.5 mm 5 – 6 GHz: ≤ 2 mm
		$\Delta z_{Zoom}(n>1)$: between subsequent points	$\leq 1.5 \cdot \Delta z_{Zoom}(n-1)$	
Minimum zoom scan volume	x, y, z		≥ 30 mm	3 – 4 GHz: ≥ 28 mm 4 – 5 GHz: ≥ 25 mm 5 – 6 GHz: ≥ 22 mm

Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see draft standard IEEE P1528-2011 for details.

* When zoom scan is required and the *reported* SAR from the *area scan based 1-g SAR estimation* procedures of KDB 447498 is ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 mm zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.

7.5 Volume Scan Procedures

The volume scan is used for assess overlapping SAR distributions for antennas transmitting in different frequency bands. It is equivalent to an oversized zoom scan used in standalone measurements. The measurement volume will be used to enclose all the simultaneous transmitting antennas. For antennas transmitting simultaneously in different frequency bands, the volume scan is measured separately in each frequency band. In order to sum correctly to compute the 1g aggregate SAR, the EUT remain in the same test position for all measurements and all volume scan use the same spatial resolution and grid spacing. When all volume scan were completed, the software, SEMCAD postprocessor can combine and subsequently superpose these measurement data to calculating the multiband SAR.

7.6 Power Drift Monitoring

All SAR testing is under the EUT install full charged battery and transmit maximum output power. In DASY measurement software, the power reference measurement and power drift measurement procedures are used for monitoring the power drift of EUT during SAR test. Both these procedures measure the field at a specified reference position before and after the SAR testing. The software will calculate the field difference in dB. If the power drifts more than 5%, the SAR will be retested.

8. Test Equipment List

Manufacturer	Name of Equipment	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
SPEAG	5GHz System Validation Kit(2)	D5GHzV2	1171	Apr. 20, 2021	Apr. 18, 2023
SPEAG	Data Acquisition Electronics	DAE4	854	Aug. 24, 2022	Aug. 23, 2023
SPEAG	Dosimetric E-Field Probe	EX3DV4	3642	Apr. 28, 2022	Apr. 27, 2023
Testo	Hygro meter	608-H1	45196600	Nov. 02, 2022	Nov. 01, 2023
SPEAG	Device Holder	N/A	N/A	N/A	N/A
Anritsu	Signal Generator	MG3710A	6201502524	Oct. 12, 2022	Oct. 11, 2023
Keysight	ENA Network Analyzer	E5071C	MY46104758	Sep. 22, 2022	Sep. 21, 2023
SPEAG	Dielectric Probe Kit	DAK-3.5	1126	Sep. 28, 2022	Sep. 27, 2023
LINE SEIKI	Digital Thermometer	DTM3000-spezial	2942	Oct. 31, 2022	Oct. 30, 2023
Anritsu	Power Meter	ML2495A	1419002	Aug. 16, 2022	Aug. 15, 2023
Anritsu	Power Sensor	MA2411B	1911176	Aug. 16, 2022	Aug. 15, 2023
Anritsu	Power Meter	ML2495A	1804003	Oct. 17, 2022	Oct. 16, 2023
Anritsu	Power Sensor	MA2411B	1726150	Oct. 17, 2022	Oct. 16, 2023
Anritsu	Spectrum Analyzer	MS2830A	6201396378	Jul. 21, 2022	Jul. 20, 2023
Agilent	Spectrum Analyzer	E4408B	MY44211028	Aug. 19, 2021	Aug. 17, 2023
Mini-Circuits	Power Amplifier	ZVE-8G+	6418	Oct. 14, 2022	Oct. 13, 2023
Mini-Circuits	Power Amplifier	ZVE-8G+	479102029	Sep. 15, 2022	Sep. 14, 2023
ATM	Dual Directional Coupler	C122H-10	P610410z-02	Note 1	
Woken	Attenuator 1	WK0602-XX	N/A	Note 1	
PE	Attenuator 2	PE7005-10	N/A	Note 1	
PE	Attenuator 3	PE7005- 3	N/A	Note 1	

General Note:

1. Prior to system verification and validation, the path loss from the signal generator to the system check source and the power meter, which includes the amplifier, cable, attenuator and directional coupler, was measured by the network analyzer. The reading of the power meter was offset by the path loss difference between the path to the power meter and the path to the system check source to monitor the actual power level fed to the system check source.
2. The dipole calibration interval can be extended to 3 years with justification according to KDB 865664 D01. The dipoles are also not physically damaged, or repaired during the interval. The justification data in appendix C can be found which the return loss is < -20dB, within 20% of prior calibration, the impedance is within 5 ohm of prior calibration for each dipole.

9. System Verification

9.1 Tissue Verification

The tissue dielectric parameters of tissue-equivalent media used for SAR measurements must be characterized within a temperature range of 18℃ to 25℃, measured with calibrated instruments and apparatuses, such as network analyzers and temperature probes. The temperature of the tissue-equivalent medium during SAR measurement must also be within 18℃ to 25℃ and within ± 2℃ of the temperature when the tissue parameters are characterized. The tissue dielectric measurement system must be calibrated before use. The dielectric parameters must be measured before the tissue-equivalent medium is used in a series of SAR measurements.
The liquid tissue depth was at least 15cm in the phantom for all SAR testing.

<Tissue Dielectric Parameter Check Results>

Frequency (MHz)	Liquid Temp. (℃)	Conductivity (σ)	Permittivity (ε_r)	Conductivity Target (σ)	Permittivity Target (ε_r)	Delta (σ) (%)	Delta (ε_r) (%)	Limit (%)	Date
5850	22.8	5.174	35.273	5.32	35.25	-2.74	0.07	±5	2022/11/12

9.2 System Performance Check Results

Comparing to the original SAR value provided by SPEAG, the verification data should be within its specification of 10 %. Below table shows the target SAR and measured SAR after normalized to 1W input power. The table below indicates the system performance check can meet the variation criterion and the plots can be referred to Appendix A of this report.

Test Site	Date	Frequency (MHz)	Input Power (mW)	Dipole S/N	Probe S/N	DAE S/N	Measured 1g SAR (W/kg)	Targeted 1g SAR (W/kg)	Normalized 1g SAR (W/kg)	Deviation (%)	Measured 10g SAR (W/kg)	Targeted 10g SAR (W/kg)	Normalized 10g SAR (W/kg)	Deviation (%)
SAR06	2022/11/12	5850	100	D5GHzV2-1171-5850	EX3DV4 - SN3642	DAE4 Sn854	7.510	82.300	75.1	-8.75	2.090	23.100	20.9	-9.52

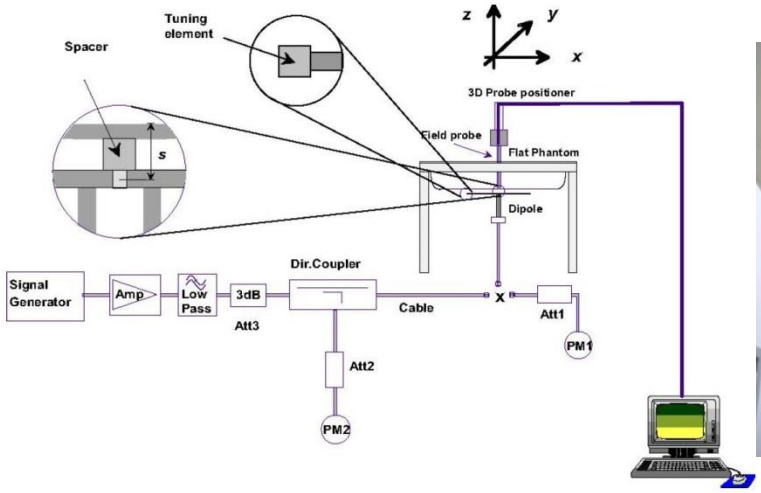


Fig 8.3.1 System Performance Check Setup

Fig 8.3.2 Setup Photo

10. RF Exposure Positions

10.1 Ear and handset reference point

Figure 9.1.1 shows the front, back, and side views of the SAM phantom. The center-of-mouth reference point is labeled “M,” the left ear reference point (ERP) is marked “LE,” and the right ERP is marked “RE.” Each ERP is 15 mm along the B-M (back-mouth) line behind the entrance-to-ear-canal (EEC) point, as shown in Figure 9.1.2 The Reference Plane is defined as passing through the two ear reference points and point M. The line N-F (neck-front), also called the reference pivoting line, is normal to the Reference Plane and perpendicular to both a line passing through RE and LE and the B-M line (see Figure 9.1.3). Both N-F and B-M lines should be marked on the exterior of the phantom shell to facilitate handset positioning. Posterior to the N-F line the ear shape is a flat surface with 6 mm thickness at each ERP, and forward of the N-F line the ear is truncated, as illustrated in Figure 9.1.2. The ear truncation is introduced to preclude the ear lobe from interfering with handset tilt, which could lead to unstable positioning at the cheek.

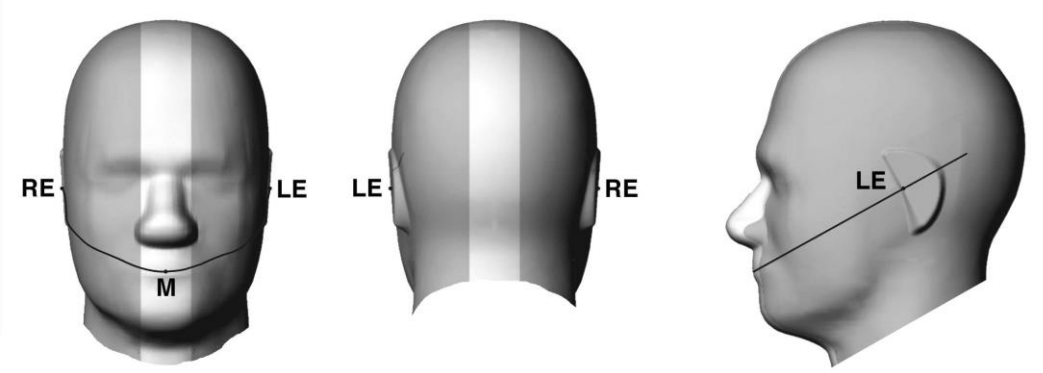


Fig 9.1.1 Front, back, and side views of SAM twin phantom

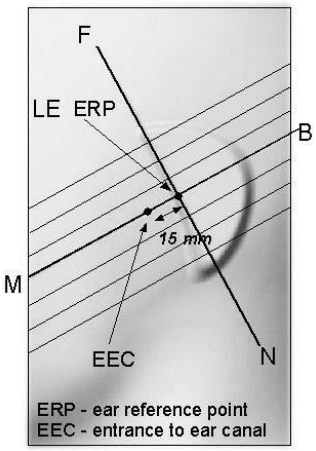


Fig 9.1.2 Close-up side view of phantom showing the ear region.

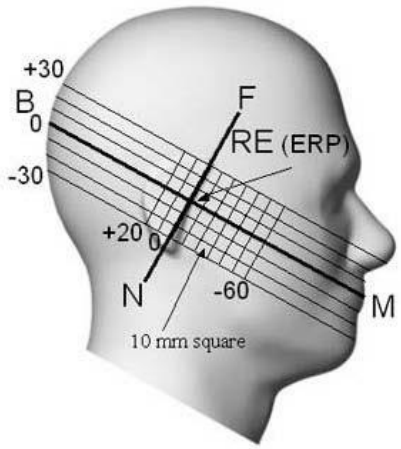


Fig 9.1.3 Side view of the phantom showing relevant markings and seven cross-sectional plane locations

10.2 Definition of the cheek position

1. Ready the handset for talk operation, if necessary. For example, for handsets with a cover piece (flip cover), open the cover. If the handset can transmit with the cover closed, both configurations must be tested.
2. Define two imaginary lines on the handset—the vertical centerline and the horizontal line. The vertical centerline passes through two points on the front side of the handset—the midpoint of the width wt of the handset at the level of the acoustic output (point A in Figure 9.2.1 and Figure 9.2.2), and the midpoint of the width wb of the bottom of the handset (point B). The horizontal line is perpendicular to the vertical centerline and passes through the center of the acoustic output (see Figure 9.2.1). The two lines intersect at point A. Note that for many handsets, point A coincides with the center of the acoustic output; however, the acoustic output may be located elsewhere on the horizontal line. Also note that the vertical centerline is not necessarily parallel to the front face of the handset (see Figure 9.2.2), especially for clamshell handsets, handsets with flip covers, and other irregularly-shaped handsets.
3. Position the handset close to the surface of the phantom such that point A is on the (virtual) extension of the line passing through points RE and LE on the phantom (see Figure 9.2.3), such that the plane defined by the vertical centerline and the horizontal line of the handset is approximately parallel to the sagittal plane of the phantom.
4. Translate the handset towards the phantom along the line passing through RE and LE until handset point A touches the pinna at the ERP.
5. While maintaining the handset in this plane, rotate it around the LE-RE line until the vertical centerline is in the plane normal to the plane containing B-M and N-F lines, i.e., the Reference Plane.
6. Rotate the handset around the vertical centerline until the handset (horizontal line) is parallel to the N-F line.
7. While maintaining the vertical centerline in the Reference Plane, keeping point A on the line passing through RE and LE, and maintaining the handset contact with the pinna, rotate the handset about the N-F line until any point on the handset is in contact with a phantom point below the pinna on the cheek. See Figure 9.2.3. The actual rotation angles should be documented in the test report.

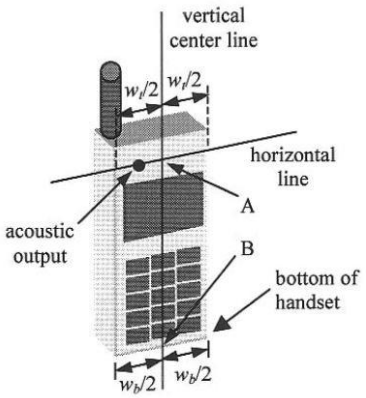


Fig 9.2.1 Handset vertical and horizontal reference lines—"fixed case

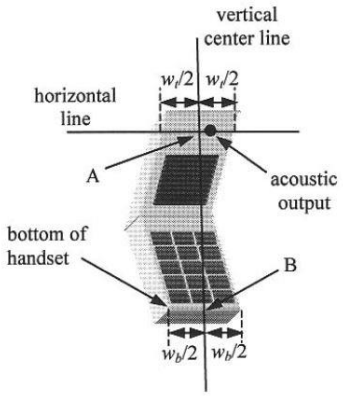


Fig 9.2.2 Handset vertical and horizontal reference lines—"clam-shell case"

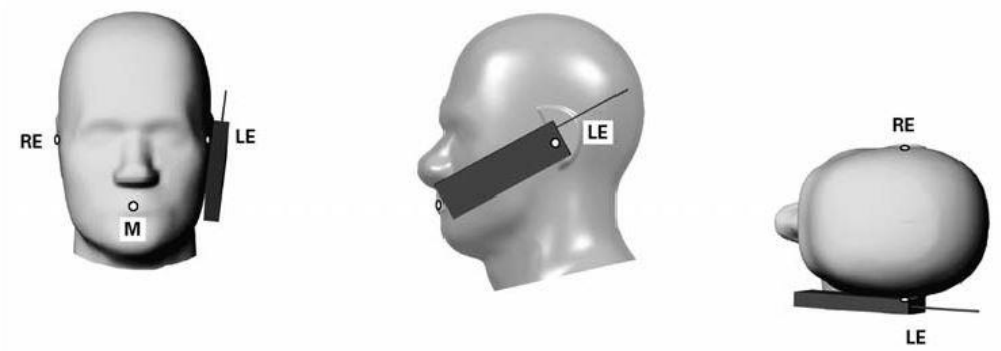


Fig 9.2.3 cheek or touch position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which establish the Reference Plane for handset positioning, are indicated.

10.3 Definition of the tilt position

1. Ready the handset for talk operation, if necessary. For example, for handsets with a cover piece (flip cover), open the cover. If the handset can transmit with the cover closed, both configurations must be tested.
2. While maintaining the orientation of the handset, move the handset away from the pinna along the line passing through RE and LE far enough to allow a rotation of the handset away from the cheek by 15°.
3. Rotate the handset around the horizontal line by 15°.
4. While maintaining the orientation of the handset, move the handset towards the phantom on the line passing through RE and LE until any part of the handset touches the ear. The tilt position is obtained when the contact point is on the pinna. See Figure 9.3.1. If contact occurs at any location other than the pinna, e.g., the antenna at the back of the phantom head, the angle of the handset should be reduced. In this case, the tilt position is obtained if any point on the handset is in contact with the pinna and a second point

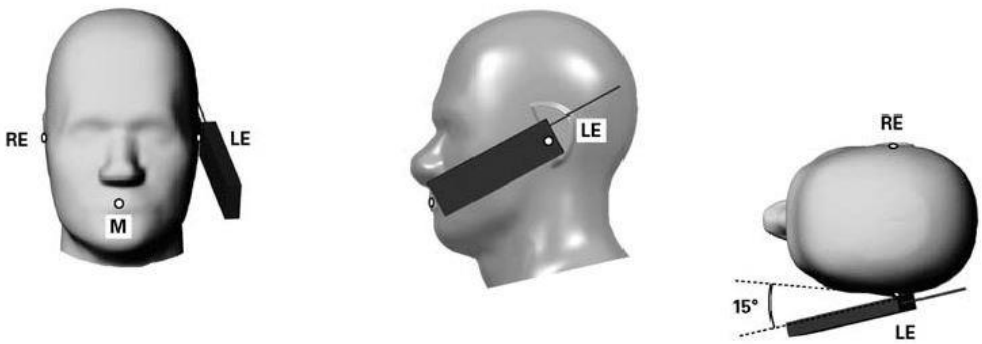


Fig 9.3.1 Tilt position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which define the Reference Plane for handset positioning, are indicated.

10.4 Body Worn Accessory

Body-worn operating configurations are tested with the belt-clips and holsters attached to the device and positioned against a flat phantom in a normal use configuration (see Figure 9.4). Per KDB648474 D04v01r03, body-worn accessory exposure is typically related to voice mode operations when handsets are carried in body-worn accessories. The body-worn accessory procedures in FCC KDB 447498 D01v06 should be used to test for body-worn accessory SAR compliance, without a headset connected to it. This enables the test results for such configuration to be compatible with that required for hotspot mode when the body-worn accessory test separation distance is greater than or equal to that required for hotspot mode, when applicable. When the reported SAR for body-worn accessory, measured without a headset connected to the handset is > 1.2 W/kg, the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a handset attached to the handset.

Accessories for body-worn operation configurations are divided into two categories: those that do not contain metallic components and those that do contain metallic components and those that do contain metallic components. When multiple accessories that do not contain metallic components are supplied with the device, the device is tested with only the accessory that dictates the closest spacing to the body. Then multiple accessories that contain metallic components are test with the device with each accessory. If multiple accessories share an identical metallic component (i.e. the same metallic belt-chip used with different holsters with no other metallic components) only the accessory that dictates the closest spacing to the body is tested.

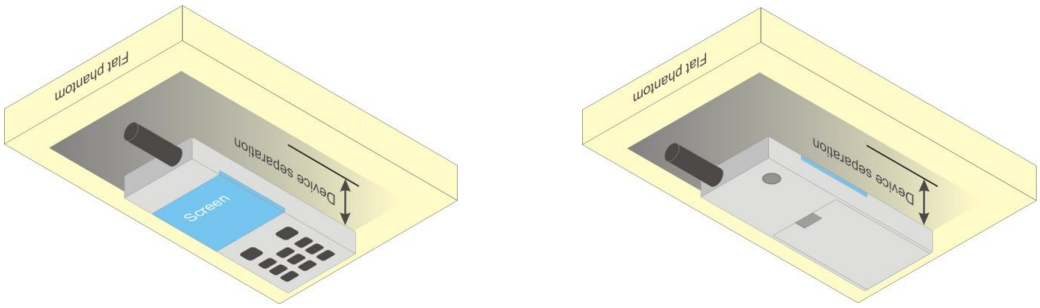


Fig 9.4 Body Worn Position

10.5 Product Specific Exposure

For smart phones with a display diagonal dimension > 15.0 cm or an overall diagonal dimension > 16.0 cm that provide similar mobile web access and multimedia support found in mini-tablets or UMPC mini-tablets that support voice calls next to the ear, According to KDB648474 D04v01r03, the following phablet procedures should be applied to evaluate SAR compliance for each applicable wireless modes and frequency band. Devices marketed as phablets, regardless of form factors and operating characteristics must be tested as a phablet to determine SAR compliance

1. The normally required head and body-worn accessory SAR test procedures for handsets, including hotspot mode, must be applied.

2. The UMPC mini-tablet procedures must also be applied to test the SAR of all surfaces and edges with an antenna located at ≤ 25 mm from that surface or edge, in direct contact with a flat phantom, for 10-g extremity SAR according to the body-equivalent tissue dielectric parameters in KDB 865664 to address interactive hand use exposure conditions.6 The UMPC mini-tablet 1-g SAR at 5 mm is not required. When hotspot mode applies, 10-g extremity SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg.

10.6 Wireless Router

Some battery-operated handsets have the capability to transmit and receive user through simultaneous transmission of WIFI simultaneously with a separate licensed transmitter. The FCC has provided guidance in FCC KDB Publication 941225 D06 v02r01 where SAR test considerations for handsets (L x W ≥ 9 cm x 5 cm) are based on a composite test separation distance of 10mm from the front, back and edges of the device containing transmitting antennas within 2.5cm of their edges, determined form general mixed use conditions for this type of devices. Since the hotspot SAR results may overlap with the body-worn accessory SAR requirements, the more conservative configurations can be considered, thus excluding some body-worn accessory SAR tests.

When the user enables the personal wireless router functions for the handset, actual operations include simultaneous transmission of both the WIFI transmitter and another licensed transmitter. Both transmitters often do not transmit at the same transmitting frequency and thus cannot be evaluated for SAR under actual use conditions due to the limitations of the SAR assessment probes. Therefore, SAR must be evaluated for each frequency transmission and mode separately and spatially summed with the WIFI transmitter according to FCC KDB Publication 447498 D01v06 publication procedures. The “Portable Hotspot” feature on the handset was NOT activated during SAR assessments, to ensure the SAR measurements were evaluated for a single transmission frequency RF signal at a time.

11. WiFi Output Power (Unit: dBm)

<WLAN Note>

1. All of the wireless technology of this device only supports MIMO mode operation.
2. The maximum output power specified for production units are determined for all applicable 802.11 transmission modes in each standalone and aggregated frequency band. Maximum output power is measured for the highest maximum output power configuration(s) in each frequency band according to the default power measurement procedures. For “Not required”, SAR Test reduction was applied from KDB 248227 guidance, Sec. 2.1, b), 1) when the same maximum power is specified for multiple transmission modes in a frequency band, the largest channel bandwidth, lowest order modulation, lowest data rate and lowest order 802.11a/g/n/ac mode is used for SAR measurement, on the highest measured output power channel in the initial test configuration, for each frequency band additional output power measurements were not necessary.
3. Per KDB 248227 D01v02r02, SAR test reduction is determined according to 802.11 transmission mode configurations and certain exposure conditions with multiple test positions. In the 2.4 GHz band, separate SAR procedures are applied to DSSS and OFDM configurations to simplify DSSS test requirements. For OFDM, in both 2.4 and 5 GHz bands, an initial test configuration must be determined for each standalone and aggregated frequency band, according to the transmission mode configuration with the highest maximum output power specified for production units to perform SAR measurements. If the same highest maximum output power applies to different combinations of channel bandwidths, modulations and data rates, additional procedures are applied to determine which test configurations require SAR measurement. When applicable, an initial test position may be applied to reduce the number of SAR measurements required for next to the ear, UMPC mini-tablet or hotspot mode configurations with multiple test positions.
4. For 2.4 GHz 802.11b DSSS, either the initial test position procedure for multiple exposure test positions or the DSSS procedure for fixed exposure position is applied; these are mutually exclusive. For 2.4 GHz and 5 GHz OFDM configurations, the initial test configuration is applied to measure SAR using either the initial test position procedure for multiple exposure test position configurations or the initial test configuration procedures for fixed exposure test conditions. Based on the reported SAR of the measured configurations and maximum output power of the transmission mode configurations that are not included in the initial test configuration, the subsequent test configuration and initial test position procedures are applied to determine if SAR measurements are required for the remaining OFDM transmission configurations. In general, the number of test channels that require SAR measurement is minimized based on maximum output power measured for the test sample(s).
5. For OFDM transmission configurations in the 2.4 GHz and 5 GHz bands, When the same maximum power is specified for multiple transmission modes in a frequency band, the largest channel bandwidth, lowest order modulation, lowest data rate and lowest order 802.11a/g/n/ac mode is used for SAR measurement, on the highest measured output power channel for each frequency band.
6. DSSS and OFDM configurations are considered separately according to the required SAR procedures. SAR is measured in the initial test position using the 802.11 transmission mode configuration required by the DSSS procedure or initial test configuration and subsequent test configuration(s) according to the OFDM procedures.18 The initial test position procedure is described in the following:
   a. When the reported SAR of the initial test position is ≤ 0.4 W/kg, further SAR measurement is not required for the other test positions in that exposure configuration and 802.11 transmission mode combinations within the frequency band or aggregated band.
   b. When the reported SAR of the test position is > 0.4 W/kg, SAR is repeated for the 802.11 transmission mode configuration tested in the initial test position to measure the subsequent next closet/smallest test separation distance and maximum coupling test position on the highest maximum output power channel, until the report SAR is ≤ 0.8 W/kg or all required test position are tested.
   c. For all positions/configurations, when the reported SAR is > 0.8 W/kg, SAR is measured for these test positions/configurations on the subsequent next highest measured output power channel(s) until the reported SAR is ≤ 1.2 W/kg or all required channels are tested.
7. Per 201904 TCBC workshops, General principles of FCC KDB Publication 248227 D01 can be applied to determine the SAR Initial Test Configurations and test reduction for 802.11ax SAR testing. For the table below the 802.11ax maximum power is SU (non-OFDMA), and the SU maximum power also higher than RU (OFDMA)
8. In applying the test guidance, the IEEE 802.11 mode with the maximum output power (out of all modes) should be considered for testing
9. For modes with the same maximum output power, the guidance from section 5.3.2 a) of FCC KDB Publication 248227 D01 should be applied, with 802.11ax being considered as the highest 802.11 mode for the appropriate frequency bands
10. When SAR testing for 802.11ax is required
    a. If the maximum output power is highest for OFDMA scenarios, choose the tone size with the maximum number of tones and the highest maximum output power
    b. Otherwise, consider the fully allocated channel for SAR testing
    c. When SAR testing is required on RU sizes less than the fully allocated channel, use the RU number closest to the middle of the channel, choosing the higher RU number when two RUs are equidistant to the middle of the channel
11. For the conducted power measurement is MIMO chains transmitting simultaneously and measured the separately conducted power for both chains and then based on the conducted power of antenna 3 and antenna 4 or antenna 3 and antenna 7 respectively to calculate sum of the power for MIMO mode

WLAN Default Power/ Index 1/2

				Ant 3+7(3)		Ant 3+7(7)		Ant 3+7		
	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN	802.11a 6Mbps	169	5845	not required	18.50	not required	18.50	not required	21.50	not required
		173	5865		19.00		19.00		22.00	
		177	5885		19.00		19.00		22.00	
	802.11n-HT20 MCS0	169	5845		19.50		19.50		22.50	
		173	5865		19.50		19.50		22.50	
		177	5885		19.00		19.00		22.00	
	802.11n-HT40 MCS0	167	5835		21.00		21.00		24.00	
		175	5875		21.00		21.00		24.00	
	802.11ac-VHT20 MCS0	169	5845		19.50		19.50		22.50	
		173	5865		19.50		19.50		22.50	
		177	5885		19.00		19.00		22.00	
	802.11ac-VHT40 MCS0	167	5835		21.00		21.00		24.00	
		175	5875		21.00		21.00		24.00	
	802.11ac-VHT80 MCS0	171	5855	20.95	21.00	20.40	21.00	23.69	24.00	92.10
	802.11ax-HE20 MCS0	169	5845	not required	19.50	not required	19.50	not required	22.50	not required
		173	5865		20.00		20.00		23.00	
		177	5885		19.50		19.50		22.50	
	802.11ax-HE40 MCS0	167	5835		20.00		20.00		23.00	
		175	5875		20.00		20.00		23.00	
	802.11ax-HE80 MCS0	171	5855		20.00		20.00		23.00	

WLAN Power Index 3/4

				Ant 3+7(3)		Ant 3+7(7)		Ant 3+7		
	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN	802.11a 6Mbps	169	5845	not required	18.50	not required	18.50	not required	21.50	not required
		173	5865		19.00		19.00		22.00	
		177	5885		19.00		19.00		22.00	
	802.11n-HT20 MCS0	169	5845		19.50		19.50		22.50	
		173	5865		19.50		19.50		22.50	
		177	5885		19.00		19.00		22.00	
	802.11n-HT40 MCS0	167	5835		19.50		19.50		22.50	
		175	5875		19.50		19.50		22.50	
	802.11ac-VHT20 MCS0	169	5845		19.50		19.50		22.50	
		173	5865		19.50		19.50		22.50	
		177	5885		19.00		19.00		22.00	
	802.11ac-VHT40 MCS0	167	5835		19.50		19.50		22.50	
		175	5875		19.50		19.50		22.50	
	802.11ac-VHT80 MCS0	171	5855	19.45	19.50	19.00	19.50	22.24	22.50	92.10
	802.11ax-HE20 MCS0	169	5845	not required	19.50	not required	19.50	not required	22.50	not required
		173	5865		19.50		19.50		22.50	
		177	5885		19.50		19.50		22.50	
	802.11ax-HE40 MCS0	167	5835		19.50		19.50		22.50	
		175	5875		19.50		19.50		22.50	
	802.11ax-HE80 MCS0	171	5855		19.50		19.50		22.50	

WLAN Power Index 5

				Ant 3+7(3)		Ant 3+7(7)		Ant 3+7		
	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN	802.11a 6Mbps	169	5845	not required	18.50	not required	18.50	not required	21.50	not required
		173	5865		19.00		19.00		22.00	
		177	5885		19.00		19.00		22.00	
	802.11n-HT20 MCS0	169	5845		19.00		19.00		22.00	
		173	5865		19.00		19.00		22.00	
		177	5885		19.00		19.00		22.00	
	802.11n-HT40 MCS0	167	5835	18.65	19.00	18.00	19.00	21.35	22.00	96.80
		175	5875	18.65	19.00	18.00	19.00	21.35	22.00	
	802.11ac-VHT20 MCS0	169	5845	not required	19.00	not required	19.00	not required	22.00	not required
		173	5865		19.00		19.00		22.00	
		177	5885		19.00		19.00		22.00	
	802.11ac-VHT40 MCS0	167	5835		19.00		19.00		22.00	
		175	5875		19.00		19.00		22.00	
	802.11ac-VHT80 MCS0	171	5855	18.95	19.00	18.10	19.00	21.56	22.00	92.10
	802.11ax-HE20 MCS0	169	5845	not required	19.00	not required	19.00	not required	22.00	not required
		173	5865		19.00		19.00		22.00	
		177	5885		19.00		19.00		22.00	
	802.11ax-HE40 MCS0	167	5835		19.00		19.00		22.00	
		175	5875		19.00		19.00		22.00	
	802.11ax-HE80 MCS0	171	5855		19.00		19.00		22.00	

WLAN Power Index 6

				Ant 3+7(3)		Ant 3+7(7)		Ant 3+7		
	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN	802.11a 6Mbps	169	5845	not required	18.50	not required	18.50	not required	21.50	not required
		173	5865		18.50		18.50		21.50	
		177	5885		18.50		18.50		21.50	
	802.11n-HT20 MCS0	169	5845		18.50		18.50		21.50	
		173	5865		18.50		18.50		21.50	
		177	5885		18.50		18.50		21.50	
	802.11n-HT40 MCS0	167	5835	18.45	18.50	17.90	18.50	21.19	21.50	96.80
		175	5875	18.45	18.50	17.80	18.50	21.15	21.50	
	802.11ac-VHT20 MCS0	169	5845	not required	18.50	not required	18.50	not required	21.50	not required
		173	5865		18.50		18.50		21.50	
		177	5885		18.50		18.50		21.50	
	802.11ac-VHT40 MCS0	167	5835		18.50		18.50		21.50	
		175	5875		18.50		18.50		21.50	
	802.11ac-VHT80 MCS0	171	5855	18.15	18.50	17.50	18.50	20.85	21.50	92.10
	802.11ax-HE20 MCS0	169	5845	not required	18.50	not required	18.50	not required	21.50	not required
		173	5865		18.50		18.50		21.50	
		177	5885		18.50		18.50		21.50	
	802.11ax-HE40 MCS0	167	5835		18.50		18.50		21.50	
		175	5875		18.50		18.50		21.50	
	802.11ax-HE80 MCS0	171	5855		18.50		18.50		21.50	

WLAN Power Index 7

				Ant 3+7(3)		Ant 3+7(7)		Ant 3+7		
	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN	802.11a 6Mbps	169	5845	not required	16.50	not required	16.50	not required	19.50	not required
		173	5865		16.50		16.50		19.50	
		177	5885		16.50		16.50		19.50	
	802.11n-HT20 MCS0	169	5845		16.50		16.50		19.50	
		173	5865		16.50		16.50		19.50	
		177	5885		16.50		16.50		19.50	
	802.11n-HT40 MCS0	167	5835		16.50		16.50		19.50	
		175	5875		16.50		16.50		19.50	
	802.11ac-VHT20 MCS0	169	5845		16.50		16.50		19.50	
		173	5865		16.50		16.50		19.50	
		177	5885		16.50		16.50		19.50	
	802.11ac-VHT40 MCS0	167	5835		16.50		16.50		19.50	
		175	5875		16.50		16.50		19.50	
	802.11ac-VHT80 MCS0	171	5855	16.35	16.50	15.80	16.50	19.09	19.50	92.10
	802.11ax-HE20 MCS0	169	5845	not required	16.50	not required	16.50	not required	19.50	not required
		173	5865		16.50		16.50		19.50	
		177	5885		16.50		16.50		19.50	
	802.11ax-HE40 MCS0	167	5835		16.50		16.50		19.50	
		175	5875		16.50		16.50		19.50	
	802.11ax-HE80 MCS0	171	5855		16.50		16.50		19.50	

WLAN Power Index 8/9

				Ant 3+7(3)		Ant 3+7(7)		Ant 3+7		
	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN	802.11a 6Mbps	169	5845	not required	15.50	not required	15.50	not required	18.50	not required
		173	5865		15.50		15.50		18.50	
		177	5885		15.50		15.50		18.50	
	802.11n-HT20 MCS0	169	5845		15.50		15.50		18.50	
		173	5865		15.50		15.50		18.50	
		177	5885		15.50		15.50		18.50	
	802.11n-HT40 MCS0	167	5835		15.50		15.50		18.50	
		175	5875		15.50		15.50		18.50	
	802.11ac-VHT20 MCS0	169	5845		15.50		15.50		18.50	
		173	5865		15.50		15.50		18.50	
		177	5885		15.50		15.50		18.50	
	802.11ac-VHT40 MCS0	167	5835		15.50		15.50		18.50	
		175	5875		15.50		15.50		18.50	
	802.11ac-VHT80 MCS0	171	5855	15.25	15.50	14.80	15.50	18.04	18.50	92.10
	802.11ax-HE20 MCS0	169	5845	not required	15.50	not required	15.50	not required	18.50	not required
		173	5865		15.50		15.50		18.50	
		177	5885		15.50		15.50		18.50	
	802.11ax-HE40 MCS0	167	5835		15.50		15.50		18.50	
		175	5875		15.50		15.50		18.50	
	802.11ax-HE80 MCS0	171	5855		15.50		15.50		18.50	

12. RF Exposure position consideration

Distance of the Antenna to the EUT surface/edge						
Antennas	Front	Back	Top Side	Bottom Side	Right Side	Left Side
WLAN/BT Ant 7+3	≤ 25mm	≤ 25mm	≤ 25mm	> 25mm	≤ 25mm	≤ 25mm

Positions for SAR tests for Product Specific						
Antennas	Front	Back	Top Side	Bottom Side	Right Side	Left Side
5/6GHz WLAN/BT Ant 7+3	Yes	Yes	Yes	No	Yes	Yes

General Note:

1. According KDB 941225 D07, the devices must be tested for 1-g SAR on all surfaces and side edges with a transmitting antenna located at ≤ 25 mm from that surface or edge.
2. The antenna location is illustrated in the Appendix D.

13. SAR Test Results

General Note:

1. Per KDB 447498 D01v06, the reported SAR is the measured SAR value adjusted for maximum tune-up tolerance.
   a. Tune-up scaling Factor = tune-up limit power (mW) / EUT RF power (mW), where tune-up limit is the maximum rated power among all production units.
   b. For SAR testing of WLAN signal with non-100% duty cycle, the measured SAR is scaled-up by the duty cycle scaling factor which is equal to "1/(duty cycle)"
   c. For WLAN/Bluetooth: Reported SAR(W/kg)= Measured SAR(W/kg)* Duty Cycle scaling factor * Tune-up scaling factor
2. Per KDB 447498 D01v06, for each exposure position, testing of other required channels within the operating mode of a frequency band is not required when the *reported* 1-g or 10-g SAR for the mid-band or highest output power channel is:
   - ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz
   - ≤ 0.6 W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz
   - ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz
3. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required only when the measured SAR is ≥0.8W/kg.
4. Per KDB 648474 D04v01r03, when the reported SAR for a body-worn accessory measured without a headset connected to the handset is ≤ 1.2 W/kg, SAR testing with a headset connected to the handset is not required.
5. For UNII-4 WLAN product specific SAR is required since it does not support hotspot operation and the overall diagonal distance is > 16cm

WLAN Note:

1. When the reported SAR of the test position is > 0.4 W/kg, SAR is repeated for the 802.11 transmission mode configuration tested in the initial test position to measure the subsequent next closet/smallest test separation distance and maximum coupling test position on the highest maximum output power channel, until the report SAR is ≤ 0.8 W/kg or all required test position are tested.
2. For all positions / configurations, when the reported SAR is > 0.8 W/kg, SAR is measured for these test positions / configurations on the subsequent next highest measured output power channel(s) until the reported SAR is ≤ 1.2 W/kg or all required channels are tested.
3. WiFi 5.8G UNII4 does not support SISO mode, so standalone SAR was only tested in MIMO mode operation.
4. Per Oct 2022 TCB Workshop notes, since UNII-4 and UNII-3 maximum output powers are the same, they can be handled as a single band. UNII-3 worst case SAR configuration (refer to Sporton Report No.: FA121931-04C) was tested with UNII-4 channel and bandwidth for Head and Body-worn. The product specific SAR for UNII-4 was evaluated with all positions since it does not support hotspot operation
5. For determination of the scaling factor for report SAR of MIMO mode, if the hot spots are separated the scaling factors are individually determined from each transmit chain. If the hot spots are not spatially separated, the scaling factor is determined from the worst number of each transmit chain.
6. During SAR testing the WLAN transmission was verified using a spectrum analyzer.

13.1 Head SAR

<WLAN SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power Index	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN5GHz	802.11ac-VHT80 MCS0	Right Cheek	0mm	Ant 3+7(7)	1/2	171	5855	20.40	21.00	1.148	92.1	1.086	-0.08	0.304	0.379
01	WLAN5GHz	802.11ac-VHT80 MCS0	Right Cheek	0mm	Ant 3+7(3)	1/2	171	5855	20.95	21.00	1.012	92.1	1.086	-0.08	0.460	0.505
	WLAN5GHz	802.11ac-VHT80 MCS0	Right Cheek	0mm	Ant 3+7(3)	3/4	171	5855	19.45	19.50	1.012	92.1	1.086	0.17	0.405	0.445

13.2 Body Worn Accessory SAR

<WLAN SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power Index	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
02	WLAN5GHz	802.11ac-VHT80 MCS0	Back	10mm	Ant 3+7(7)	5	171	5855	18.10	19.00	1.230	92.1	1.086	-0.16	0.832	1.112
	WLAN5GHz	802.11n-HT40 MCS0	Back	10mm	Ant 3+7(7)	5	175	5875	18.00	19.00	1.259	96.8	1.033	-0.08	0.781	1.016
	WLAN5GHz	802.11ac-VHT80 MCS0	Back	10mm	Ant 3+7(7)	6	171	5855	17.50	18.50	1.259	92.1	1.086	0.08	0.730	0.998
	WLAN5GHz	802.11n-HT40 MCS0	Back	10mm	Ant 3+7(7)	6	167	5835	17.90	18.50	1.148	96.8	1.033	-0.11	0.678	0.804
	WLAN5GHz	802.11ac-VHT80 MCS0	Back	10mm	Ant 3+7(7)	7	171	5855	15.80	16.50	1.175	92.1	1.086	-0.19	0.346	0.441
	WLAN5GHz	802.11ac-VHT80 MCS0	Back	10mm	Ant 3+7(7)	8/9	171	5855	14.80	15.50	1.175	92.1	1.086	0.19	0.334	0.426

13.3 Product Specific SAR

<WLAN SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power Index	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
	WLAN5GHz	802.11ac-VHT80 MCS0	Front	0mm	Ant 3+7(7)	5	171	5855	18.10	19.00	1.230	92.1	1.086	0.05	0.298	0.398
03	WLAN5GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 3+7(7)	5	171	5855	18.10	19.00	1.230	92.1	1.086	-0.16	1.530	2.044
	WLAN5GHz	802.11n-HT40 MCS0	Back	0mm	Ant 3+7(7)	5	175	5875	18.00	19.00	1.259	96.8	1.033	0.05	1.450	1.886
	WLAN5GHz	802.11ac-VHT80 MCS0	Top Side	0mm	Ant 3+7(7)	5	171	5855	18.10	19.00	1.230	92.1	1.086	0.12	0.165	0.220
	WLAN5GHz	802.11ac-VHT80 MCS0	Left Side	0mm	Ant 3+7(3)	5	171	5855	18.95	19.00	1.012	92.1	1.086	-0.01	0.821	0.902
	WLAN5GHz	802.11ac-VHT80 MCS0	Right Side	0mm	Ant 3+7(7)	5	171	5855	18.10	19.00	1.230	92.1	1.086	-0.07	0.150	0.200
	WLAN5GHz	802.11ac-VHT80 MCS0	Front	0mm	Ant 3+7(7)	6	171	5855	17.50	18.50	1.259	92.1	1.086	0.12	0.211	0.288
	WLAN5GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 3+7(7)	6	171	5855	17.50	18.50	1.259	92.1	1.086	-0.13	1.310	1.791
	WLAN5GHz	802.11ac-VHT80 MCS0	Top Side	0mm	Ant 3+7(7)	6	171	5855	17.50	18.50	1.259	92.1	1.086	-0.02	0.126	0.172
	WLAN5GHz	802.11ac-VHT80 MCS0	Left Side	0mm	Ant 3+7(3)	6	171	5855	18.15	18.50	1.084	92.1	1.086	0.13	0.584	0.687
	WLAN5GHz	802.11ac-VHT80 MCS0	Right Side	0mm	Ant 3+7(7)	6	171	5855	17.50	18.50	1.259	92.1	1.086	0.13	0.112	0.153
	WLAN5GHz	802.11ac-VHT80 MCS0	Front	0mm	Ant 3+7(7)	7	171	5855	15.80	16.50	1.175	92.1	1.086	0.06	0.089	0.114
	WLAN5GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 3+7(7)	7	171	5855	15.80	16.50	1.175	92.1	1.086	-0.1	0.778	0.993
	WLAN5GHz	802.11ac-VHT80 MCS0	Top Side	0mm	Ant 3+7(7)	7	171	5855	15.80	16.50	1.175	92.1	1.086	0.04	0.172	0.219
	WLAN5GHz	802.11ac-VHT80 MCS0	Left Side	0mm	Ant 3+7(3)	7	171	5855	16.35	16.50	1.035	92.1	1.086	-0.02	0.234	0.263
	WLAN5GHz	802.11ac-VHT80 MCS0	Right Side	0mm	Ant 3+7(7)	7	171	5855	15.80	16.50	1.175	92.1	1.086	0.09	0.097	0.124
	WLAN5GHz	802.11ac-VHT80 MCS0	Front	0mm	Ant 3+7(7)	8/9	171	5855	14.80	15.50	1.175	92.1	1.086	-0.15	0.083	0.106
	WLAN5GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 3+7(7)	8/9	171	5855	14.80	15.50	1.175	92.1	1.086	-0.09	0.633	0.808
	WLAN5GHz	802.11ac-VHT80 MCS0	Top Side	0mm	Ant 3+7(7)	8/9	171	5855	14.80	15.50	1.175	92.1	1.086	0.09	0.144	0.184
	WLAN5GHz	802.11ac-VHT80 MCS0	Left Side	0mm	Ant 3+7(3)	8/9	171	5855	15.25	15.50	1.059	92.1	1.086	-0.02	0.181	0.208
	WLAN5GHz	802.11ac-VHT80 MCS0	Right Side	0mm	Ant 3+7(7)	8/9	171	5855	14.80	15.50	1.175	92.1	1.086	0.08	0.084	0.107

13.4 Repeated SAR Measurement

No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power Index	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Ratio	Reported 1g SAR (W/kg)
1st	WLAN5GHz	802.11ac-VHT80 MCS0	Back	10mm	Ant 3+7(7)	5	171	5855	18.10	19.00	1.230	92.1	1.086	-0.16	0.832	-	1.112
2nd	WLAN5GHz	802.11ac-VHT80 MCS0	Back	10mm	Ant 3+7(7)	5	171	5855	18.10	19.00	1.230	92.1	1.086	0.04	0.814	1.022	1.088

General Note:

1. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required only when the measured SAR is ≥0.8W/kg.
2. Per KDB 865664 D01v01r04, if the ratio among the repeated measurement is ≤ 1.2 and the measured SAR <1.45W/kg, only one repeated measurement is required.
3. The ratio is the difference in percentage between original and repeated *measured SAR*.
4. All measurement SAR result is scaled-up to account for tune-up tolerance and is compliant.

14. Simultaneous Transmission Analysis

Portable Condition	Tx mode	Capable TX Configurations	WWAN Power	WiFi Power	BT Power
Head	WWAN standalone	WWAN	Index 2		
	WiFi standalone	WiFi 2.4G MIMO/CDD (Ant4+3)		Index 1	
		WiFi 5G MIMO (Ant7+3)			
		WiFi 6E MIMO (Ant7+3)			
		WiFi 2.4G MIMO (Ant4+3) + WiFi 5G MIMO (Ant7+3)		Index 2 (RSDB)	
		WiFi 2.4G MIMO (Ant4+3) + WiFi 6E MIMO (Ant7+3)			
	BT standalone	Bluetooth (Ant4) (BDR/EDR Only)			Index 1
		Bluetooth (Ant3) (BDR/EDR Only)			
		Bluetooth (Ant4+3) (BDR/EDR Only)			
	WiFi +BT	WiFi 5G MIMO (Ant7+3) + Bluetooth (Ant4)		Index 1	Index 1
		WiFi 5G MIMO (Ant7+3) + Bluetooth (Ant3)			
		WiFi 5G MIMO (Ant7+3) + Bluetooth (Ant4+3)			
		WiFi 6E MIMO (Ant7+3) + Bluetooth (Ant4)			
		WiFi 6E MIMO (Ant7+3) + Bluetooth (Ant3)			
		WiFi 6E MIMO (Ant7+3) + Bluetooth (Ant4+3)			
	WWAN + WiFi	WWAN + WiFi 2.4G MIMO/CDD (Ant4+3)	Index 3 / Index 7 (Hostpot on)	Index 3	
		WWAN + WiFi 5G MIMO (Ant7+3)			
		WWAN + WiFi 6E MIMO (Ant7+3)			
		WWAN + WiFi 2.4G MIMO (Ant4+3) + WiFi 5G MIMO (Ant7+3)		Index 4 (RSDB)	
		WWAN + WiFi 2.4G MIMO (Ant4+3) + WiFi 6E MIMO (Ant7+3)			
	WWAN + BT	WWAN + Bluetooth (Ant4) (BDR/EDR Only)	Index 3 / Index 7 (Hostpot on)		Index 1
		WWAN + Bluetooth (Ant3) (BDR/EDR Only)			
		WWAN + Bluetooth (Ant4+3) (BDR/EDR Only)			
	WWAN + WiFi + BT	WWAN + WiFi 5G MIMO (Ant7+3) + Bluetooth (Ant4)	Index 3 / Index 7 (Hostpot on)	Index 3	Index 1
		WWAN + WiFi 5G MIMO (Ant7+3) + Bluetooth (Ant3)			
		WWAN + WiFi 5G MIMO (Ant7+3) + Bluetooth (Ant4+3)			
		WWAN + WiFi 6E MIMO (Ant7+3) + Bluetooth (Ant4)			
		WWAN + WiFi 6E MIMO (Ant7+3) + Bluetooth (Ant3)			
		WWAN + WiFi 6E MIMO (Ant7+3) + Bluetooth (Ant4+3)			

Portable Condition	Tx mode	Capable TX Configurations	WWAN Power	WiFi Power	BT Power
Body	WWAN standalone	WWAN	Index 5		
	WiFi standalone	WiFi 2.4G MIMO/CDD (Ant4+3)		Index 5	
		WiFi 5G MIMO (Ant7+3)			
		WiFi 6E MIMO (Ant7+3)			
		WiFi 2.4G MIMO (Ant4+3) + WiFi 5G MIMO (Ant7+3)		Index 6 (RSDB)	
		WiFi 2.4G MIMO (Ant4+3) + WiFi 6E MIMO (Ant7+3)			
	BT standalone	Bluetooth (Ant4) (BDR/EDR Only)			Index 2
		Bluetooth (Ant3) (BDR/EDR Only)			
		Bluetooth (Ant4+3) (BDR/EDR Only)			
	WiFi +BT	WiFi 5G MIMO (Ant7+3) + Bluetooth (Ant4)		Index 5	Index 3
		WiFi 5G MIMO (Ant7+3) + Bluetooth (Ant3)			
		WiFi 5G MIMO (Ant7+3) + Bluetooth (Ant4+3)			
		WiFi 6E MIMO (Ant7+3) + Bluetooth (Ant4)			
		WiFi 6E MIMO (Ant7+3) + Bluetooth (Ant3)			
		WiFi 6E MIMO (Ant7+3) + Bluetooth (Ant4+3)			
	WWAN + WiFi	WWAN + WiFi 2.4G MIMO/CDD (Ant4+3)	Index 6 / Index 4 (Hostpot on)	Index 7	
		WWAN + WiFi 5G MIMO (Ant7+3)			
		WWAN + WiFi 6E MIMO (Ant7+3)			
		WWAN + WiFi 2.4G MIMO (Ant4+3) + WiFi 5G MIMO (Ant7+3)		Index 8 (RSDB)	
		WWAN + WiFi 2.4G MIMO (Ant4+3) + WiFi 6E MIMO (Ant7+3)			
	WWAN + BT	WWAN + Bluetooth (Ant4) (BDR/EDR Only)	Index 6 / Index 4 (Hostpot on)		Index 3
		WWAN + Bluetooth (Ant3) (BDR/EDR Only)			
		WWAN + Bluetooth (Ant4+3) (BDR/EDR Only)			
	WWAN + WiFi +BT	WWAN + WiFi 5G MIMO (Ant7+3) + Bluetooth (Ant4)	Index 6 / Index 4 (Hostpot on)	Index 9	Index 4
		WWAN + WiFi 5G MIMO (Ant7+3) + Bluetooth (Ant3)			
		WWAN + WiFi 5G MIMO (Ant7+3) + Bluetooth (Ant4+3)			
		WWAN + WiFi 6E MIMO (Ant7+3) + Bluetooth (Ant4)			
		WWAN + WiFi 6E MIMO (Ant7+3) + Bluetooth (Ant3)			
		WWAN + WiFi 6E MIMO (Ant7+3) + Bluetooth (Ant4+3)			

General Note:

1. Simultaneous operation at maximum power levels when the device is neither against the body nor the head (i.e. in a mobile RF exposure condition) is addressed in Sporton's RF Exposure report FA121931-24A
2. The Sim-Tx configuration combination include in operation description will be match the title in the below Sum-Tx evaluation table.
3. This device only WLAN 2.4GHz / 5.2GHz / 5.8GHz supports Hotspot operation and Bluetooth support tethering applications.
4. The worst case WLAN reported SAR for each configuration was used for SAR summation. Therefore, the following summations represent the absolute worst cases for simultaneous transmission with WLAN.
5. The Scaled SAR summation is calculated based on the same configuration and test position.
6. Per KDB 447498 D01v06, simultaneous transmission SAR is compliant if,
   i) Scalar SAR summation < 1.6W/kg.
   ii) SPLSR = (SAR1 + SAR2)^1.5 / (min. separation distance, mm), and the peak separation distance is determined from the square root of [(x1-x2)2 + (y1-y2)2 + (z1-z2)2], where (x1, y1, z1) and (x2, y2, z2) are the coordinates of the extrapolated peak SAR locations in the zoom scan.
   iii) If SPLSR ≤ 0.04, simultaneously transmission SAR measurement is not necessary.
   iv) Simultaneously transmission SAR measurement, and the reported multi-band SAR < 1.6W/kg.
7. For WWAN power, when the device is in head mode and hotspot function is enabled, the device will select power index 7 which is further lower than power index 3, as described in the operational description. In this report, standalone and simultaneous SAR compliance for the mentioned scenario was justified at power index 3 conservatively.
8. WiFi 2.4/5/6 GHz does not support SISO mode, so standalone SAR was only tested in MIMO mode operation

14.1 5G NR + LTE + WLAN + BT Sim-Tx analysis

The power ratio factors are g_1 and g_2 for LTE and NR respectively. The main purpose of these power ratio factors is to split the available SAR budget among different RATs, so $g_1 + g_2 \leq 1$. The value of g_1 is computed based on the need of the anchor (LTE) and can be changed if the anchor changes its power request. Based on the SAR Budget portion allocated to the anchor, the value of g_2 will be computed. At steady state (where all RATs are being on for a while), the allocated power ratio factors will guarantee that the total exposure ratio never exceeds the highest exposure of either one.

$$g_1 * LTE_{exposure} + g_2 * NR_{exposure} \leq 1.0,$$
$$\text{then, } g_1 * LTE_{exposure} + g_2 * NR_{exposure} \leq \max(LTE_{exposure}, NR_{exposure})$$

Compliance of simultaneous transmission of LTE+5GNR+WiFi+BT can be justified from the compliance of LTE+WiFi +BT and 5GNR+WiFi+BT

14.2 Head Exposure Conditions

<WLAN Index 1, BT Index 1>

Exposure Position	1 2.4GHz WLAN Ant 4+3 1g SAR (W/kg)	2 5/6GHz WLAN Ant 7+3 1g SAR (W/kg)	3 Bluetooth Ant 4 1g SAR (W/kg)	4 Bluetooth Ant 3 1g SAR (W/kg)	5 Bluetooth Ant 3+4 1g SAR (W/kg)	**2+3 Summed 1g SAR (W/kg)**	**2+4 Summed 1g SAR (W/kg)**	**2+5 Summed 1g SAR (W/kg)**
Right Cheek at 0mm	0.514	0.959	0.063	0.050	0.091	**1.022**	**1.009**	**1.050**
Right Tilted at 0mm	0.488	0.784	0.047	0.025	0.076	**0.831**	**0.809**	**0.860**
Left Cheek at 0mm	1.105	0.453	0.146	0.039	0.179	**0.599**	**0.492**	**0.632**
Left Tilted at 0mm	1.004	0.545	0.109	0.019	0.092	**0.654**	**0.564**	**0.637**

<WLAN Index 2>

Exposure Position	1 2.4GHz WLAN Ant 4+3 1g SAR (W/kg)	1 5/6GHz WLAN Ant 7+3 1g SAR (W/kg)	**1+2 Summed 1g SAR (W/kg)**
Right Cheek at 0mm	0.458	0.959	**1.417**
Right Tilted at 0mm	0.435	0.784	**1.219**
Left Cheek at 0mm	0.985	0.453	**1.438**
Left Tilted at 0mm	0.895	0.545	**1.440**

<WWAN Index 3, WLAN Index 3, BT Index 1>

WWAN Band	Exposure Position	1	5	7	9	10	11	1+5 Summed 1g SAR (W/kg)	1+7 Summed 1g SAR (W/kg)	1+7+9 Summed 1g SAR (W/kg)	1+7+10 Summed 1g SAR (W/kg)	1+7+11 Summed 1g SAR (W/kg)
		WWAN	2.4GHz WLAN Ant 4+3	5/6GHz WLAN Ant 7+3	Bluetooth Ant 4	Bluetooth Ant 3	Bluetooth Ant 4+3					
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)					
GSM850_Ant 0	Right Cheek	0.214	0.292	0.506	0.063	0.050	0.091	**0.506**	**0.720**	**0.783**	**0.770**	**0.811**
	Right Tilted	0.104	0.267	0.396	0.047	0.025	0.076	**0.371**	**0.500**	**0.547**	**0.525**	**0.576**
	Left Cheek	0.237	0.606	0.299	0.146	0.039	0.179	**0.843**	**0.536**	**0.682**	**0.575**	**0.715**
	Left Tilted	0.126	0.475	0.330	0.109	0.019	0.092	**0.601**	**0.456**	**0.565**	**0.475**	**0.548**
GSM1900_Ant 2	Right Cheek	0.187	0.292	0.506	0.063	0.050	0.091	**0.479**	**0.693**	**0.756**	**0.743**	**0.784**
	Right Tilted	0.074	0.267	0.396	0.047	0.025	0.076	**0.341**	**0.470**	**0.517**	**0.495**	**0.546**
	Left Cheek	0.091	0.606	0.299	0.146	0.039	0.179	**0.697**	**0.390**	**0.536**	**0.429**	**0.569**
	Left Tilted	0.005	0.475	0.330	0.109	0.019	0.092	**0.480**	**0.335**	**0.444**	**0.354**	**0.427**
WCDMA II_Ant 2	Right Cheek	0.225	0.292	0.506	0.063	0.050	0.091	**0.517**	**0.731**	**0.794**	**0.781**	**0.822**
	Right Tilted	0.078	0.267	0.396	0.047	0.025	0.076	**0.345**	**0.474**	**0.521**	**0.499**	**0.550**
	Left Cheek	0.105	0.606	0.299	0.146	0.039	0.179	**0.711**	**0.404**	**0.550**	**0.443**	**0.583**
	Left Tilted	0.101	0.475	0.330	0.109	0.019	0.092	**0.576**	**0.431**	**0.540**	**0.450**	**0.523**
WCDMA IV_Ant 2	Right Cheek	0.198	0.292	0.506	0.063	0.050	0.091	**0.490**	**0.704**	**0.767**	**0.754**	**0.795**
	Right Tilted	0.031	0.267	0.396	0.047	0.025	0.076	**0.298**	**0.427**	**0.474**	**0.452**	**0.503**
	Left Cheek	0.058	0.606	0.299	0.146	0.039	0.179	**0.664**	**0.357**	**0.503**	**0.396**	**0.536**
	Left Tilted	0.036	0.475	0.330	0.109	0.019	0.092	**0.511**	**0.366**	**0.475**	**0.385**	**0.458**
WCDMA V_Ant 0	Right Cheek	0.271	0.292	0.506	0.063	0.050	0.091	**0.563**	**0.777**	**0.840**	**0.827**	**0.868**
	Right Tilted	0.140	0.267	0.396	0.047	0.025	0.076	**0.407**	**0.536**	**0.583**	**0.561**	**0.612**
	Left Cheek	0.370	0.606	0.299	0.146	0.039	0.179	**0.976**	**0.669**	**0.815**	**0.708**	**0.848**
	Left Tilted	0.125	0.475	0.330	0.109	0.019	0.092	**0.600**	**0.455**	**0.564**	**0.474**	**0.547**
LTE Band 7_Ant 2	Right Cheek	0.279	0.292	0.506	0.063	0.050	0.091	**0.571**	**0.785**	**0.848**	**0.835**	**0.876**
	Right Tilted	0.181	0.267	0.396	0.047	0.025	0.076	**0.448**	**0.577**	**0.624**	**0.602**	**0.653**
	Left Cheek	0.238	0.606	0.299	0.146	0.039	0.179	**0.844**	**0.537**	**0.683**	**0.576**	**0.716**
	Left Tilted	0.203	0.475	0.330	0.109	0.019	0.092	**0.678**	**0.533**	**0.642**	**0.552**	**0.625**
LTE Band 12_Ant 0	Right Cheek	0.206	0.292	0.506	0.063	0.050	0.091	**0.498**	**0.712**	**0.775**	**0.762**	**0.803**
	Right Tilted	0.158	0.267	0.396	0.047	0.025	0.076	**0.425**	**0.554**	**0.601**	**0.579**	**0.630**
	Left Cheek	0.235	0.606	0.299	0.146	0.039	0.179	**0.841**	**0.534**	**0.680**	**0.573**	**0.713**
	Left Tilted	0.132	0.475	0.330	0.109	0.019	0.092	**0.607**	**0.462**	**0.571**	**0.481**	**0.554**
LTE Band 13_Ant 0	Right Cheek	0.208	0.292	0.506	0.063	0.050	0.091	**0.500**	**0.714**	**0.777**	**0.764**	**0.805**
	Right Tilted	0.172	0.267	0.396	0.047	0.025	0.076	**0.439**	**0.568**	**0.615**	**0.593**	**0.644**
	Left Cheek	0.322	0.606	0.299	0.146	0.039	0.179	**0.928**	**0.621**	**0.767**	**0.660**	**0.800**
	Left Tilted	0.139	0.475	0.330	0.109	0.019	0.092	**0.614**	**0.469**	**0.578**	**0.488**	**0.561**
LTE Band 14_Ant 0	Right Cheek	0.210	0.292	0.506	0.063	0.050	0.091	**0.502**	**0.716**	**0.779**	**0.766**	**0.807**
	Right Tilted	0.183	0.267	0.396	0.047	0.025	0.076	**0.450**	**0.579**	**0.626**	**0.604**	**0.655**
	Left Cheek	0.363	0.606	0.299	0.146	0.039	0.179	**0.969**	**0.662**	**0.808**	**0.701**	**0.841**
	Left Tilted	0.157	0.475	0.330	0.109	0.019	0.092	**0.632**	**0.487**	**0.596**	**0.506**	**0.579**
LTE Band 25_Ant 2	Right Cheek	0.306	0.292	0.506	0.063	0.050	0.091	**0.598**	**0.812**	**0.875**	**0.862**	**0.903**
	Right Tilted	0.059	0.267	0.396	0.047	0.025	0.076	**0.326**	**0.455**	**0.502**	**0.480**	**0.531**
	Left Cheek	0.121	0.606	0.299	0.146	0.039	0.179	**0.727**	**0.420**	**0.566**	**0.459**	**0.599**
	Left Tilted	0.098	0.475	0.330	0.109	0.019	0.092	**0.573**	**0.428**	**0.537**	**0.447**	**0.520**
LTE Band 26_Ant 0	Right Cheek	0.321	0.292	0.506	0.063	0.050	0.091	**0.613**	**0.827**	**0.890**	**0.877**	**0.918**
	Right Tilted	0.208	0.267	0.396	0.047	0.025	0.076	**0.475**	**0.604**	**0.651**	**0.629**	**0.680**
	Left Cheek	0.332	0.606	0.299	0.146	0.039	0.179	**0.938**	**0.631**	**0.777**	**0.670**	**0.810**
	Left Tilted	0.181	0.475	0.330	0.109	0.019	0.092	**0.656**	**0.511**	**0.620**	**0.530**	**0.603**
LTE Band 30_Ant 2	Right Cheek	0.136	0.292	0.506	0.063	0.050	0.091	**0.428**	**0.642**	**0.705**	**0.692**	**0.733**
	Right Tilted	0.051	0.267	0.396	0.047	0.025	0.076	**0.318**	**0.447**	**0.494**	**0.472**	**0.523**
	Left Cheek	0.091	0.606	0.299	0.146	0.039	0.179	**0.697**	**0.390**	**0.536**	**0.429**	**0.569**
	Left Tilted	0.065	0.475	0.330	0.109	0.019	0.092	**0.540**	**0.395**	**0.504**	**0.414**	**0.487**
LTE Band 41_Ant 2	Right Cheek	0.194	0.292	0.506	0.063	0.050	0.091	**0.486**	**0.700**	**0.763**	**0.750**	**0.791**
	Right Tilted	0.084	0.267	0.396	0.047	0.025	0.076	**0.351**	**0.480**	**0.527**	**0.505**	**0.556**
	Left Cheek	0.136	0.606	0.299	0.146	0.039	0.179	**0.742**	**0.435**	**0.581**	**0.474**	**0.614**

	Left Tilted	0.076	0.475	0.330	0.109	0.019	0.092	**0.551**	**0.406**	**0.515**	**0.425**	**0.498**
LTE Band 48_Ant 6	Right Cheek	0.187	0.292	0.506	0.063	0.050	0.091	**0.479**	**0.693**	**0.756**	**0.743**	**0.784**
	Right Tilted	0.182	0.267	0.396	0.047	0.025	0.076	**0.449**	**0.578**	**0.625**	**0.603**	**0.654**
	Left Cheek	0.347	0.606	0.299	0.146	0.039	0.179	**0.953**	**0.646**	**0.792**	**0.685**	**0.825**
	Left Tilted	0.101	0.475	0.330	0.109	0.019	0.092	**0.576**	**0.431**	**0.540**	**0.450**	**0.523**
LTE Band 66_Ant 2	Right Cheek	0.201	0.292	0.506	0.063	0.050	0.091	**0.493**	**0.707**	**0.770**	**0.757**	**0.798**
	Right Tilted	0.095	0.267	0.396	0.047	0.025	0.076	**0.362**	**0.491**	**0.538**	**0.516**	**0.567**
	Left Cheek	0.104	0.606	0.299	0.146	0.039	0.179	**0.710**	**0.403**	**0.549**	**0.442**	**0.582**
	Left Tilted	0.094	0.475	0.330	0.109	0.019	0.092	**0.569**	**0.424**	**0.533**	**0.443**	**0.516**
LTE Band 71_Ant 0	Right Cheek	0.112	0.292	0.506	0.063	0.050	0.091	**0.404**	**0.618**	**0.681**	**0.668**	**0.709**
	Right Tilted	0.089	0.267	0.396	0.047	0.025	0.076	**0.356**	**0.485**	**0.532**	**0.510**	**0.561**
	Left Cheek	0.230	0.606	0.299	0.146	0.039	0.179	**0.836**	**0.529**	**0.675**	**0.568**	**0.708**
	Left Tilted	0.150	0.475	0.330	0.109	0.019	0.092	**0.625**	**0.480**	**0.589**	**0.499**	**0.572**
FR1 n5_Ant 0	Right Cheek	0.224	0.292	0.506	0.063	0.050	0.091	**0.516**	**0.730**	**0.793**	**0.780**	**0.821**
	Right Tilted	0.142	0.267	0.396	0.047	0.025	0.076	**0.409**	**0.538**	**0.585**	**0.563**	**0.614**
	Left Cheek	0.305	0.606	0.299	0.146	0.039	0.179	**0.911**	**0.604**	**0.750**	**0.643**	**0.783**
	Left Tilted	0.186	0.475	0.330	0.109	0.019	0.092	**0.661**	**0.516**	**0.625**	**0.535**	**0.608**
FR1 n7_Ant 2	Right Cheek	0.301	0.292	0.506	0.063	0.050	0.091	**0.593**	**0.807**	**0.870**	**0.857**	**0.898**
	Right Tilted	0.117	0.267	0.396	0.047	0.025	0.076	**0.384**	**0.513**	**0.560**	**0.538**	**0.589**
	Left Cheek	0.173	0.606	0.299	0.146	0.039	0.179	**0.779**	**0.472**	**0.618**	**0.511**	**0.651**
	Left Tilted	0.146	0.475	0.330	0.109	0.019	0.092	**0.621**	**0.476**	**0.585**	**0.495**	**0.568**
FR1 n12_Ant 0	Right Cheek	0.219	0.292	0.506	0.063	0.050	0.091	**0.511**	**0.725**	**0.788**	**0.775**	**0.816**
	Right Tilted	0.134	0.267	0.396	0.047	0.025	0.076	**0.401**	**0.530**	**0.577**	**0.555**	**0.606**
	Left Cheek	0.254	0.606	0.299	0.146	0.039	0.179	**0.860**	**0.553**	**0.699**	**0.592**	**0.732**
	Left Tilted	0.148	0.475	0.330	0.109	0.019	0.092	**0.623**	**0.478**	**0.587**	**0.497**	**0.570**
FR1 n25_Ant 2	Right Cheek	0.295	0.292	0.506	0.063	0.050	0.091	**0.587**	**0.801**	**0.864**	**0.851**	**0.892**
	Right Tilted	0.134	0.267	0.396	0.047	0.025	0.076	**0.401**	**0.530**	**0.577**	**0.555**	**0.606**
	Left Cheek	0.124	0.606	0.299	0.146	0.039	0.179	**0.730**	**0.423**	**0.569**	**0.462**	**0.602**
	Left Tilted	0.133	0.475	0.330	0.109	0.019	0.092	**0.608**	**0.463**	**0.572**	**0.482**	**0.555**
FR1 n30_Ant 2	Right Cheek	0.228	0.292	0.506	0.063	0.050	0.091	**0.520**	**0.734**	**0.797**	**0.784**	**0.825**
	Right Tilted	0.144	0.267	0.396	0.047	0.025	0.076	**0.411**	**0.540**	**0.587**	**0.565**	**0.616**
	Left Cheek	0.159	0.606	0.299	0.146	0.039	0.179	**0.765**	**0.458**	**0.604**	**0.497**	**0.637**
	Left Tilted	0.101	0.475	0.330	0.109	0.019	0.092	**0.576**	**0.431**	**0.540**	**0.450**	**0.523**
FR1 n41_Ant 1	Right Cheek	0.780	0.292	0.506	0.063	0.050	0.091	**1.072**	**1.286**	**1.349**	**1.336**	**1.377**
	Right Tilted	0.897	0.267	0.396	0.047	0.025	0.076	**1.164**	**1.293**	**1.340**	**1.318**	**1.369**
	Left Cheek	0.301	0.606	0.299	0.146	0.039	0.179	**0.907**	**0.600**	**0.746**	**0.639**	**0.779**
	Left Tilted	0.334	0.475	0.330	0.109	0.019	0.092	**0.809**	**0.664**	**0.773**	**0.683**	**0.756**
FR1 n66_Ant 2	Right Cheek	0.210	0.292	0.506	0.063	0.050	0.091	**0.502**	**0.716**	**0.779**	**0.766**	**0.807**
	Right Tilted	0.097	0.267	0.396	0.047	0.025	0.076	**0.364**	**0.493**	**0.540**	**0.518**	**0.569**
	Left Cheek	0.108	0.606	0.299	0.146	0.039	0.179	**0.714**	**0.407**	**0.553**	**0.446**	**0.586**
	Left Tilted	0.110	0.475	0.330	0.109	0.019	0.092	**0.585**	**0.440**	**0.549**	**0.459**	**0.532**
FR1 n71_Ant 0	Right Cheek	0.192	0.292	0.506	0.063	0.050	0.091	**0.484**	**0.698**	**0.761**	**0.748**	**0.789**
	Right Tilted	0.112	0.267	0.396	0.047	0.025	0.076	**0.379**	**0.508**	**0.555**	**0.533**	**0.584**
	Left Cheek	0.151	0.606	0.299	0.146	0.039	0.179	**0.757**	**0.450**	**0.596**	**0.489**	**0.629**
	Left Tilted	0.114	0.475	0.330	0.109	0.019	0.092	**0.589**	**0.444**	**0.553**	**0.463**	**0.536**
FR1 n77_Ant 6	Right Cheek	0.347	0.292	0.506	0.063	0.050	0.091	**0.639**	**0.853**	**0.916**	**0.903**	**0.944**
	Right Tilted	0.311	0.267	0.396	0.047	0.025	0.076	**0.578**	**0.707**	**0.754**	**0.732**	**0.783**
	Left Cheek	0.615	0.606	0.299	0.146	0.039	0.179	**1.221**	**0.914**	**1.060**	**0.953**	**1.093**
	Left Tilted	0.225	0.475	0.330	0.109	0.019	0.092	**0.700**	**0.555**	**0.664**	**0.574**	**0.647**

<WWAN Index 3, WLAN Index 3, BT Index 1>

WWAN Band	Exposure Position	1	5	7	9	10	11	1+5 Summed 1g SAR (W/kg)	1+7 Summed 1g SAR (W/kg)	1+7+9 Summed 1g SAR (W/kg)	1+7+10 Summed 1g SAR (W/kg)	1+7+11 Summed 1g SAR (W/kg)
		WWAN	2.4GHz WLAN Ant 4+3	5/6GHz WLAN Ant 7+3	Bluetooth Ant 4	Bluetooth Ant 3	Bluetooth Ant 4+3					
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)					
GSM850_Ant 1	Right Cheek	0.892	0.292	0.506	0.063	0.050	0.091	**1.184**	**1.398**	**1.461**	**1.448**	**1.489**
	Right Tilted	0.831	0.267	0.396	0.047	0.025	0.076	**1.098**	**1.227**	**1.274**	**1.252**	**1.303**
	Left Cheek	0.743	0.606	0.299	0.146	0.039	0.179	**1.349**	**1.042**	**1.188**	**1.081**	**1.221**
	Left Tilted	0.718	0.475	0.330	0.109	0.019	0.092	**1.193**	**1.048**	**1.157**	**1.067**	**1.140**
GSM1900_Ant 0	Right Cheek	0.078	0.292	0.506	0.063	0.050	0.091	**0.370**	**0.584**	**0.647**	**0.634**	**0.675**
	Right Tilted	0.054	0.267	0.396	0.047	0.025	0.076	**0.321**	**0.450**	**0.497**	**0.475**	**0.526**
	Left Cheek	0.216	0.606	0.299	0.146	0.039	0.179	**0.822**	**0.515**	**0.661**	**0.554**	**0.694**
	Left Tilted	0.065	0.475	0.330	0.109	0.019	0.092	**0.540**	**0.395**	**0.504**	**0.414**	**0.487**
WCDMA II_Ant 0	Right Cheek	0.129	0.292	0.506	0.063	0.050	0.091	**0.421**	**0.635**	**0.698**	**0.685**	**0.726**
	Right Tilted	0.113	0.267	0.396	0.047	0.025	0.076	**0.380**	**0.509**	**0.556**	**0.534**	**0.585**
	Left Cheek	0.303	0.606	0.299	0.146	0.039	0.179	**0.909**	**0.602**	**0.748**	**0.641**	**0.781**
	Left Tilted	0.127	0.475	0.330	0.109	0.019	0.092	**0.602**	**0.457**	**0.566**	**0.476**	**0.549**
WCDMA IV_Ant 0	Right Cheek	0.152	0.292	0.506	0.063	0.050	0.091	**0.444**	**0.658**	**0.721**	**0.708**	**0.749**
	Right Tilted	0.149	0.267	0.396	0.047	0.025	0.076	**0.416**	**0.545**	**0.592**	**0.570**	**0.621**
	Left Cheek	0.316	0.606	0.299	0.146	0.039	0.179	**0.922**	**0.615**	**0.761**	**0.654**	**0.794**
	Left Tilted	0.134	0.475	0.330	0.109	0.019	0.092	**0.609**	**0.464**	**0.573**	**0.483**	**0.556**
WCDMA V_Ant 1	Right Cheek	0.892	0.292	0.506	0.063	0.050	0.091	**1.184**	**1.398**	**1.461**	**1.448**	**1.489**
	Right Tilted	0.709	0.267	0.396	0.047	0.025	0.076	**0.976**	**1.105**	**1.152**	**1.130**	**1.181**
	Left Cheek	0.392	0.606	0.299	0.146	0.039	0.179	**0.998**	**0.691**	**0.837**	**0.730**	**0.870**
	Left Tilted	0.298	0.475	0.330	0.109	0.019	0.092	**0.773**	**0.628**	**0.737**	**0.647**	**0.720**
LTE Band 7_Ant 0	Right Cheek	0.178	0.292	0.506	0.063	0.050	0.091	**0.470**	**0.684**	**0.747**	**0.734**	**0.775**
	Right Tilted	0.212	0.267	0.396	0.047	0.025	0.076	**0.479**	**0.608**	**0.655**	**0.633**	**0.684**
	Left Cheek	0.366	0.606	0.299	0.146	0.039	0.179	**0.972**	**0.665**	**0.811**	**0.704**	**0.844**
	Left Tilted	0.133	0.475	0.330	0.109	0.019	0.092	**0.608**	**0.463**	**0.572**	**0.482**	**0.555**
LTE Band 12_Ant 1	Right Cheek	0.344	0.292	0.506	0.063	0.050	0.091	**0.636**	**0.850**	**0.913**	**0.900**	**0.941**
	Right Tilted	0.316	0.267	0.396	0.047	0.025	0.076	**0.583**	**0.712**	**0.759**	**0.737**	**0.788**
	Left Cheek	0.200	0.606	0.299	0.146	0.039	0.179	**0.806**	**0.499**	**0.645**	**0.538**	**0.678**
	Left Tilted	0.174	0.475	0.330	0.109	0.019	0.092	**0.649**	**0.504**	**0.613**	**0.523**	**0.596**
LTE Band 13_Ant 1	Right Cheek	0.430	0.292	0.506	0.063	0.050	0.091	**0.722**	**0.936**	**0.999**	**0.986**	**1.027**
	Right Tilted	0.349	0.267	0.396	0.047	0.025	0.076	**0.616**	**0.745**	**0.792**	**0.770**	**0.821**
	Left Cheek	0.282	0.606	0.299	0.146	0.039	0.179	**0.888**	**0.581**	**0.727**	**0.620**	**0.760**
	Left Tilted	0.265	0.475	0.330	0.109	0.019	0.092	**0.740**	**0.595**	**0.704**	**0.614**	**0.687**
LTE Band 14_Ant 1	Right Cheek	0.674	0.292	0.506	0.063	0.050	0.091	**0.966**	**1.180**	**1.243**	**1.230**	**1.271**
	Right Tilted	0.532	0.267	0.396	0.047	0.025	0.076	**0.799**	**0.928**	**0.975**	**0.953**	**1.004**
	Left Cheek	0.428	0.606	0.299	0.146	0.039	0.179	**1.034**	**0.727**	**0.873**	**0.766**	**0.906**
	Left Tilted	0.398	0.475	0.330	0.109	0.019	0.092	**0.873**	**0.728**	**0.837**	**0.747**	**0.820**
LTE Band 25_Ant 0	Right Cheek	0.123	0.292	0.506	0.063	0.050	0.091	**0.415**	**0.629**	**0.692**	**0.679**	**0.720**
	Right Tilted	0.077	0.267	0.396	0.047	0.025	0.076	**0.344**	**0.473**	**0.520**	**0.498**	**0.549**
	Left Cheek	0.381	0.606	0.299	0.146	0.039	0.179	**0.987**	**0.680**	**0.826**	**0.719**	**0.859**
	Left Tilted	0.175	0.475	0.330	0.109	0.019	0.092	**0.650**	**0.505**	**0.614**	**0.524**	**0.597**
LTE Band 26_Ant 1	Right Cheek	0.463	0.292	0.506	0.063	0.050	0.091	**0.755**	**0.969**	**1.032**	**1.019**	**1.060**
	Right Tilted	0.534	0.267	0.396	0.047	0.025	0.076	**0.801**	**0.930**	**0.977**	**0.955**	**1.006**
	Left Cheek	0.346	0.606	0.299	0.146	0.039	0.179	**0.952**	**0.645**	**0.791**	**0.684**	**0.824**
	Left Tilted	0.436	0.475	0.330	0.109	0.019	0.092	**0.911**	**0.766**	**0.875**	**0.785**	**0.858**
LTE Band 30_Ant 0	Right Cheek	0.118	0.292	0.506	0.063	0.050	0.091	**0.410**	**0.624**	**0.687**	**0.674**	**0.715**
	Right Tilted	0.083	0.267	0.396	0.047	0.025	0.076	**0.350**	**0.479**	**0.526**	**0.504**	**0.555**
	Left Cheek	0.240	0.606	0.299	0.146	0.039	0.179	**0.846**	**0.539**	**0.685**	**0.578**	**0.718**
	Left Tilted	0.113	0.475	0.330	0.109	0.019	0.092	**0.588**	**0.443**	**0.552**	**0.462**	**0.535**
LTE Band 41_Ant 0	Right Cheek	0.077	0.292	0.506	0.063	0.050	0.091	**0.369**	**0.583**	**0.646**	**0.633**	**0.674**
	Right Tilted	0.090	0.267	0.396	0.047	0.025	0.076	**0.357**	**0.486**	**0.533**	**0.511**	**0.562**
	Left Cheek	0.208	0.606	0.299	0.146	0.039	0.179	**0.814**	**0.507**	**0.653**	**0.546**	**0.686**

	Left Tilted	0.071	0.475	0.330	0.109	0.019	0.092	**0.546**	**0.401**	**0.510**	**0.420**	**0.493**
LTE Band 48_Ant 2	Right Cheek	0.117	0.292	0.506	0.063	0.050	0.091	**0.409**	**0.623**	**0.686**	**0.673**	**0.714**
	Right Tilted	0.001	0.267	0.396	0.047	0.025	0.076	**0.268**	**0.397**	**0.444**	**0.422**	**0.473**
	Left Cheek	0.048	0.606	0.299	0.146	0.039	0.179	**0.654**	**0.347**	**0.493**	**0.386**	**0.526**
	Left Tilted	0.049	0.475	0.330	0.109	0.019	0.092	**0.524**	**0.379**	**0.488**	**0.398**	**0.471**
LTE Band 66_Ant 0	Right Cheek	0.109	0.292	0.506	0.063	0.050	0.091	**0.401**	**0.615**	**0.678**	**0.665**	**0.706**
	Right Tilted	0.161	0.267	0.396	0.047	0.025	0.076	**0.428**	**0.557**	**0.604**	**0.582**	**0.633**
	Left Cheek	0.312	0.606	0.299	0.146	0.039	0.179	**0.918**	**0.611**	**0.757**	**0.650**	**0.790**
	Left Tilted	0.229	0.475	0.330	0.109	0.019	0.092	**0.704**	**0.559**	**0.668**	**0.578**	**0.651**
LTE Band 71_Ant 1	Right Cheek	0.310	0.292	0.506	0.063	0.050	0.091	**0.602**	**0.816**	**0.879**	**0.866**	**0.907**
	Right Tilted	0.200	0.267	0.396	0.047	0.025	0.076	**0.467**	**0.596**	**0.643**	**0.621**	**0.672**
	Left Cheek	0.189	0.606	0.299	0.146	0.039	0.179	**0.795**	**0.488**	**0.634**	**0.527**	**0.667**
	Left Tilted	0.136	0.475	0.330	0.109	0.019	0.092	**0.611**	**0.466**	**0.575**	**0.485**	**0.558**
FR1 n5_Ant 1	Right Cheek	0.718	0.292	0.506	0.063	0.050	0.091	**1.010**	**1.224**	**1.287**	**1.274**	**1.315**
	Right Tilted	0.709	0.267	0.396	0.047	0.025	0.076	**0.976**	**1.105**	**1.152**	**1.130**	**1.181**
	Left Cheek	0.497	0.606	0.299	0.146	0.039	0.179	**1.103**	**0.796**	**0.942**	**0.835**	**0.975**
	Left Tilted	0.512	0.475	0.330	0.109	0.019	0.092	**0.987**	**0.842**	**0.951**	**0.861**	**0.934**
FR1 n7_Ant 0	Right Cheek	0.185	0.292	0.506	0.063	0.050	0.091	**0.477**	**0.691**	**0.754**	**0.741**	**0.782**
	Right Tilted	0.220	0.267	0.396	0.047	0.025	0.076	**0.487**	**0.616**	**0.663**	**0.641**	**0.692**
	Left Cheek	0.557	0.606	0.299	0.146	0.039	0.179	**1.163**	**0.856**	**1.002**	**0.895**	**1.035**
	Left Tilted	0.131	0.475	0.330	0.109	0.019	0.092	**0.606**	**0.461**	**0.570**	**0.480**	**0.553**
FR1 n12_Ant 1	Right Cheek	0.526	0.292	0.506	0.063	0.050	0.091	**0.818**	**1.032**	**1.095**	**1.082**	**1.123**
	Right Tilted	0.443	0.267	0.396	0.047	0.025	0.076	**0.710**	**0.839**	**0.886**	**0.864**	**0.915**
	Left Cheek	0.255	0.606	0.299	0.146	0.039	0.179	**0.861**	**0.554**	**0.700**	**0.593**	**0.733**
	Left Tilted	0.294	0.475	0.330	0.109	0.019	0.092	**0.769**	**0.624**	**0.733**	**0.643**	**0.716**
FR1 n25_Ant 0	Right Cheek	0.222	0.292	0.506	0.063	0.050	0.091	**0.514**	**0.728**	**0.791**	**0.778**	**0.819**
	Right Tilted	0.174	0.267	0.396	0.047	0.025	0.076	**0.441**	**0.570**	**0.617**	**0.595**	**0.646**
	Left Cheek	0.438	0.606	0.299	0.146	0.039	0.179	**1.044**	**0.737**	**0.883**	**0.776**	**0.916**
	Left Tilted	0.188	0.475	0.330	0.109	0.019	0.092	**0.663**	**0.518**	**0.627**	**0.537**	**0.610**
FR1 n30_Ant 0	Right Cheek	0.172	0.292	0.506	0.063	0.050	0.091	**0.464**	**0.678**	**0.741**	**0.728**	**0.769**
	Right Tilted	0.134	0.267	0.396	0.047	0.025	0.076	**0.401**	**0.530**	**0.577**	**0.555**	**0.606**
	Left Cheek	0.353	0.606	0.299	0.146	0.039	0.179	**0.959**	**0.652**	**0.798**	**0.691**	**0.831**
	Left Tilted	0.180	0.475	0.330	0.109	0.019	0.092	**0.655**	**0.510**	**0.619**	**0.529**	**0.602**
FR1 n41_Ant 5	Right Cheek	0.253	0.292	0.506	0.063	0.050	0.091	**0.545**	**0.759**	**0.822**	**0.809**	**0.850**
	Right Tilted	0.108	0.267	0.396	0.047	0.025	0.076	**0.375**	**0.504**	**0.551**	**0.529**	**0.580**
	Left Cheek	0.888	0.606	0.299	0.146	0.039	0.179	**1.494**	**1.187**	**1.333**	**1.226**	**1.366**
	Left Tilted	0.221	0.475	0.330	0.109	0.019	0.092	**0.696**	**0.551**	**0.660**	**0.570**	**0.643**
FR1 n66_Ant 0	Right Cheek	0.108	0.292	0.506	0.063	0.050	0.091	**0.400**	**0.614**	**0.677**	**0.664**	**0.705**
	Right Tilted	0.114	0.267	0.396	0.047	0.025	0.076	**0.381**	**0.510**	**0.557**	**0.535**	**0.586**
	Left Cheek	0.311	0.606	0.299	0.146	0.039	0.179	**0.917**	**0.610**	**0.756**	**0.649**	**0.789**
	Left Tilted	0.102	0.475	0.330	0.109	0.019	0.092	**0.577**	**0.432**	**0.541**	**0.451**	**0.524**
FR1 n71_Ant 1	Right Cheek	0.364	0.292	0.506	0.063	0.050	0.091	**0.656**	**0.870**	**0.933**	**0.920**	**0.961**
	Right Tilted	0.398	0.267	0.396	0.047	0.025	0.076	**0.665**	**0.794**	**0.841**	**0.819**	**0.870**
	Left Cheek	0.225	0.606	0.299	0.146	0.039	0.179	**0.831**	**0.524**	**0.670**	**0.563**	**0.703**
	Left Tilted	0.239	0.475	0.330	0.109	0.019	0.092	**0.714**	**0.569**	**0.678**	**0.588**	**0.661**
FR1 n77_Ant 2	Right Cheek	0.055	0.292	0.506	0.063	0.050	0.091	**0.347**	**0.561**	**0.624**	**0.611**	**0.652**
	Right Tilted	0.044	0.267	0.396	0.047	0.025	0.076	**0.311**	**0.44**	**0.487**	**0.465**	**0.516**
	Left Cheek	0.049	0.606	0.299	0.146	0.039	0.179	**0.655**	**0.348**	**0.494**	**0.387**	**0.527**
	Left Tilted	0.048	0.475	0.330	0.109	0.019	0.092	**0.523**	**0.378**	**0.487**	**0.397**	**0.470**

<WWAN Index 3, WLAN Index 4>

WWAN Band	Exposure Position	1	5	7	1+5+7 Summed 1g SAR (W/kg)
		WWAN	2.4GHz WLAN Ant 4+3	5/6GHz WLAN Ant 7+3	
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	
GSM850_Ant 0	Right Cheek	0.214	0.110	0.506	**0.830**
	Right Tilted	0.104	0.094	0.396	**0.594**
	Left Cheek	0.237	0.174	0.299	**0.710**
	Left Tilted	0.126	0.104	0.262	**0.492**
GSM1900_Ant 2	Right Cheek	0.187	0.110	0.506	**0.803**
	Right Tilted	0.074	0.094	0.396	**0.564**
	Left Cheek	0.091	0.174	0.299	**0.564**
	Left Tilted	0.005	0.104	0.330	**0.439**
WCDMA II_Ant 2	Right Cheek	0.225	0.110	0.506	**0.841**
	Right Tilted	0.078	0.094	0.396	**0.568**
	Left Cheek	0.105	0.174	0.299	**0.578**
	Left Tilted	0.101	0.104	0.330	**0.535**
WCDMA IV_Ant 2	Right Cheek	0.198	0.110	0.506	**0.814**
	Right Tilted	0.031	0.094	0.396	**0.521**
	Left Cheek	0.058	0.174	0.299	**0.531**
	Left Tilted	0.036	0.104	0.330	**0.470**
WCDMA V_Ant 0	Right Cheek	0.271	0.110	0.506	**0.887**
	Right Tilted	0.140	0.094	0.396	**0.630**
	Left Cheek	0.370	0.174	0.299	**0.843**
	Left Tilted	0.125	0.104	0.330	**0.559**
LTE Band 7_Ant 2	Right Cheek	0.279	0.110	0.506	**0.895**
	Right Tilted	0.181	0.094	0.396	**0.671**
	Left Cheek	0.238	0.174	0.299	**0.711**
	Left Tilted	0.203	0.104	0.330	**0.637**
LTE Band 12_Ant 0	Right Cheek	0.206	0.110	0.506	**0.822**
	Right Tilted	0.158	0.094	0.396	**0.648**
	Left Cheek	0.235	0.174	0.299	**0.708**
	Left Tilted	0.132	0.104	0.330	**0.566**
LTE Band 13_Ant 0	Right Cheek	0.208	0.110	0.506	**0.824**
	Right Tilted	0.172	0.094	0.396	**0.662**
	Left Cheek	0.322	0.174	0.299	**0.795**
	Left Tilted	0.139	0.104	0.330	**0.573**
LTE Band 14_Ant 0	Right Cheek	0.210	0.110	0.506	**0.826**
	Right Tilted	0.183	0.094	0.396	**0.673**
	Left Cheek	0.363	0.174	0.299	**0.836**
	Left Tilted	0.157	0.104	0.330	**0.591**
LTE Band 25_Ant 2	Right Cheek	0.306	0.110	0.506	**0.922**
	Right Tilted	0.059	0.094	0.396	**0.549**
	Left Cheek	0.121	0.174	0.299	**0.594**
	Left Tilted	0.098	0.104	0.330	**0.532**
LTE Band 26_Ant 0	Right Cheek	0.321	0.110	0.506	**0.937**
	Right Tilted	0.208	0.094	0.396	**0.698**
	Left Cheek	0.332	0.174	0.299	**0.805**
	Left Tilted	0.181	0.104	0.330	**0.615**
LTE Band 30_Ant 2	Right Cheek	0.136	0.110	0.506	**0.752**
	Right Tilted	0.051	0.094	0.396	**0.541**
	Left Cheek	0.091	0.174	0.299	**0.564**
	Left Tilted	0.065	0.104	0.330	**0.499**
LTE Band 41_Ant 2	Right Cheek	0.194	0.110	0.506	**0.810**
	Right Tilted	0.084	0.094	0.396	**0.574**
	Left Cheek	0.136	0.174	0.299	**0.609**

	Left Tilted	0.076	0.104	0.330	**0.510**
LTE Band 48_Ant 6	Right Cheek	0.187	0.110	0.506	**0.803**
	Right Tilted	0.182	0.094	0.396	**0.672**
	Left Cheek	0.347	0.174	0.299	**0.820**
	Left Tilted	0.101	0.104	0.330	**0.535**
LTE Band 66_Ant 2	Right Cheek	0.201	0.110	0.506	**0.817**
	Right Tilted	0.095	0.094	0.396	**0.585**
	Left Cheek	0.104	0.174	0.299	**0.577**
	Left Tilted	0.094	0.104	0.330	**0.528**
LTE Band 71_Ant 0	Right Cheek	0.112	0.110	0.506	**0.728**
	Right Tilted	0.089	0.094	0.396	**0.579**
	Left Cheek	0.230	0.174	0.299	**0.703**
	Left Tilted	0.150	0.104	0.330	**0.584**
FR1 n5_Ant 0	Right Cheek	0.224	0.110	0.506	**0.840**
	Right Tilted	0.142	0.094	0.396	**0.632**
	Left Cheek	0.305	0.174	0.299	**0.778**
	Left Tilted	0.186	0.104	0.330	**0.620**
FR1 n7_Ant 2	Right Cheek	0.301	0.110	0.506	**0.917**
	Right Tilted	0.117	0.094	0.396	**0.607**
	Left Cheek	0.173	0.174	0.299	**0.646**
	Left Tilted	0.146	0.104	0.330	**0.580**
FR1 n12_Ant 0	Right Cheek	0.219	0.110	0.506	**0.835**
	Right Tilted	0.134	0.094	0.396	**0.624**
	Left Cheek	0.254	0.174	0.299	**0.727**
	Left Tilted	0.148	0.104	0.330	**0.582**
FR1 n25_Ant 2	Right Cheek	0.295	0.110	0.506	**0.911**
	Right Tilted	0.134	0.094	0.396	**0.624**
	Left Cheek	0.124	0.174	0.299	**0.597**
	Left Tilted	0.133	0.104	0.330	**0.567**
FR1 n30_Ant 2	Right Cheek	0.228	0.110	0.506	**0.844**
	Right Tilted	0.144	0.094	0.396	**0.634**
	Left Cheek	0.159	0.174	0.299	**0.632**
	Left Tilted	0.101	0.104	0.330	**0.535**
FR1 n41_Ant 1	Right Cheek	0.780	0.110	0.506	**1.396**
	Right Tilted	0.897	0.094	0.396	**1.387**
	Left Cheek	0.301	0.174	0.299	**0.774**
	Left Tilted	0.334	0.104	0.330	**0.768**
FR1 n66_Ant 2	Right Cheek	0.210	0.110	0.506	**0.826**
	Right Tilted	0.097	0.094	0.396	**0.587**
	Left Cheek	0.108	0.174	0.299	**0.581**
	Left Tilted	0.110	0.104	0.330	**0.544**
FR1 n71_Ant 0	Right Cheek	0.192	0.110	0.506	**0.808**
	Right Tilted	0.112	0.094	0.396	**0.602**
	Left Cheek	0.151	0.174	0.299	**0.624**
	Left Tilted	0.114	0.104	0.330	**0.548**
FR1 n77_Ant 6	Right Cheek	0.347	0.110	0.506	**0.963**
	Right Tilted	0.311	0.094	0.396	**0.801**
	Left Cheek	0.615	0.174	0.299	**1.088**
	Left Tilted	0.225	0.104	0.330	**0.659**

<WWAN Index 3, WLAN Index 4>

WWAN Band	Exposure Position	1	5	7	1+5+7 Summed 1g SAR (W/kg)
		WWAN	2.4GHz WLAN Ant 4+3	5/6GHz WLAN Ant 7+3	
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	
GSM850_Ant 1	Right Cheek	0.892	0.110	0.506	**1.508**
	Right Tilted	0.831	0.094	0.396	**1.321**
	Left Cheek	0.743	0.174	0.299	**1.216**
	Left Tilted	0.718	0.104	0.262	**1.084**
GSM1900_Ant 0	Right Cheek	0.078	0.110	0.506	**0.694**
	Right Tilted	0.054	0.094	0.396	**0.544**
	Left Cheek	0.216	0.174	0.299	**0.689**
	Left Tilted	0.065	0.104	0.262	**0.431**
WCDMA II_Ant 0	Right Cheek	0.129	0.110	0.506	**0.745**
	Right Tilted	0.113	0.094	0.396	**0.603**
	Left Cheek	0.303	0.174	0.299	**0.776**
	Left Tilted	0.127	0.104	0.262	**0.493**
WCDMA IV_Ant 0	Right Cheek	0.152	0.110	0.506	**0.768**
	Right Tilted	0.149	0.094	0.396	**0.639**
	Left Cheek	0.316	0.174	0.299	**0.789**
	Left Tilted	0.134	0.104	0.262	**0.500**
WCDMA V_Ant 1	Right Cheek	0.892	0.110	0.506	**1.508**
	Right Tilted	0.709	0.094	0.396	**1.199**
	Left Cheek	0.392	0.174	0.299	**0.865**
	Left Tilted	0.298	0.104	0.262	**0.664**
LTE Band 7_Ant 0	Right Cheek	0.178	0.110	0.506	**0.794**
	Right Tilted	0.212	0.094	0.396	**0.702**
	Left Cheek	0.366	0.174	0.299	**0.839**
	Left Tilted	0.133	0.104	0.262	**0.499**
LTE Band 12_Ant 1	Right Cheek	0.344	0.110	0.506	**0.960**
	Right Tilted	0.316	0.094	0.396	**0.806**
	Left Cheek	0.200	0.174	0.299	**0.673**
	Left Tilted	0.174	0.104	0.262	**0.540**
LTE Band 13_Ant 1	Right Cheek	0.430	0.110	0.506	**1.046**
	Right Tilted	0.349	0.094	0.396	**0.839**
	Left Cheek	0.282	0.174	0.299	**0.755**
	Left Tilted	0.265	0.104	0.262	**0.631**
LTE Band 14_Ant 1	Right Cheek	0.674	0.110	0.506	**1.290**
	Right Tilted	0.532	0.094	0.396	**1.022**
	Left Cheek	0.428	0.174	0.299	**0.901**
	Left Tilted	0.398	0.104	0.262	**0.764**
LTE Band 25_Ant 0	Right Cheek	0.123	0.110	0.506	**0.739**
	Right Tilted	0.077	0.094	0.396	**0.567**
	Left Cheek	0.381	0.174	0.299	**0.854**
	Left Tilted	0.175	0.104	0.262	**0.541**
LTE Band 26_Ant 1	Right Cheek	0.463	0.110	0.506	**1.079**
	Right Tilted	0.534	0.094	0.396	**1.024**
	Left Cheek	0.346	0.174	0.299	**0.819**
	Left Tilted	0.436	0.104	0.262	**0.802**
LTE Band 30_Ant 0	Right Cheek	0.118	0.110	0.506	**0.734**
	Right Tilted	0.083	0.094	0.396	**0.573**
	Left Cheek	0.240	0.174	0.299	**0.713**
	Left Tilted	0.113	0.104	0.262	**0.479**
LTE Band 41_Ant 0	Right Cheek	0.077	0.110	0.506	**0.693**
	Right Tilted	0.090	0.094	0.396	**0.580**
	Left Cheek	0.208	0.174	0.299	**0.681**

	Left Tilted	0.071	0.104	0.262	**0.437**
LTE Band 48_Ant 2	Right Cheek	0.117	0.110	0.506	**0.733**
	Right Tilted	0.001	0.094	0.396	**0.491**
	Left Cheek	0.048	0.174	0.299	**0.521**
	Left Tilted	0.049	0.104	0.262	**0.415**
LTE Band 66_Ant 0	Right Cheek	0.109	0.110	0.506	**0.725**
	Right Tilted	0.161	0.094	0.396	**0.651**
	Left Cheek	0.312	0.174	0.299	**0.785**
	Left Tilted	0.229	0.104	0.262	**0.595**
LTE Band 71_Ant 1	Right Cheek	0.310	0.110	0.506	**0.926**
	Right Tilted	0.200	0.094	0.396	**0.690**
	Left Cheek	0.189	0.174	0.299	**0.662**
	Left Tilted	0.136	0.104	0.262	**0.502**
FR1 n5_Ant 1	Right Cheek	0.718	0.110	0.506	**1.334**
	Right Tilted	0.709	0.094	0.396	**1.199**
	Left Cheek	0.497	0.174	0.299	**0.970**
	Left Tilted	0.512	0.104	0.262	**0.878**
FR1 n7_Ant 0	Right Cheek	0.185	0.110	0.506	**0.801**
	Right Tilted	0.220	0.094	0.396	**0.710**
	Left Cheek	0.557	0.174	0.299	**1.030**
	Left Tilted	0.131	0.104	0.262	**0.497**
FR1 n12_Ant 1	Right Cheek	0.526	0.110	0.506	**1.142**
	Right Tilted	0.443	0.094	0.396	**0.933**
	Left Cheek	0.255	0.174	0.299	**0.728**
	Left Tilted	0.294	0.104	0.262	**0.660**
FR1 n25_Ant 0	Right Cheek	0.222	0.110	0.506	**0.838**
	Right Tilted	0.174	0.094	0.396	**0.664**
	Left Cheek	0.438	0.174	0.299	**0.911**
	Left Tilted	0.188	0.104	0.262	**0.554**
FR1 n30_Ant 0	Right Cheek	0.172	0.110	0.506	**0.788**
	Right Tilted	0.134	0.094	0.396	**0.624**
	Left Cheek	0.353	0.174	0.299	**0.826**
	Left Tilted	0.180	0.104	0.262	**0.546**
FR1 n41_Ant 5	Right Cheek	0.253	0.110	0.506	**0.869**
	Right Tilted	0.108	0.094	0.396	**0.598**
	Left Cheek	0.888	0.174	0.299	**1.361**
	Left Tilted	0.221	0.104	0.262	**0.587**
FR1 n66_Ant 0	Right Cheek	0.108	0.110	0.506	**0.724**
	Right Tilted	0.114	0.094	0.396	**0.604**
	Left Cheek	0.311	0.174	0.299	**0.784**
	Left Tilted	0.102	0.104	0.262	**0.468**
FR1 n71_Ant 1	Right Cheek	0.364	0.110	0.506	**0.980**
	Right Tilted	0.398	0.094	0.396	**0.888**
	Left Cheek	0.225	0.174	0.299	**0.698**
	Left Tilted	0.239	0.104	0.262	**0.605**
FR1 n77_Ant 2	Right Cheek	0.055	0.110	0.506	**0.671**
	Right Tilted	0.044	0.094	0.396	**0.534**
	Left Cheek	0.049	0.174	0.299	**0.522**
	Left Tilted	0.048	0.104	0.262	**0.414**

14.3 Body-Worn Accessory Exposure Conditions

<WLAN Index 5, BT Index 3>

Exposure Position	1	2	3	4	5	2+3 Summed 1g SAR (W/kg)	2+4 Summed 1g SAR (W/kg)	2+5 Summed 1g SAR (W/kg)
	2.4GHz WLAN Ant 4+3	5/6GHz WLAN Ant 7+3	Bluetooth Ant 4	Bluetooth Ant 3	Bluetooth Ant 3+4			
	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)			
Front at 10mm	0.532	0.202	0.008	0.109	0.108	**0.211**	**0.333**	**0.332**
Back at 10mm	0.823	1.127	0.241	0.200	0.131	**1.433**	**1.367**	**1.284**

<WLAN Index 6>

Exposure Position	1	2	1+2 Summed 1g SAR (W/kg)
	2.4GHz WLAN Ant 4+3	5/6GHz WLAN Ant 7+3	
	1g SAR (W/kg)	1g SAR (W/kg)	
Front at 10mm -	0.374	0.161	**0.535**
Back at 10mm -	0.546	0.999	**1.545**

<WWAN Index 6, WLAN Index 7>

WWAN Band	Exposure Position	1	5	7	1+5 Summed 1g SAR (W/kg)	1+7 Summed 1g SAR (W/kg)
		WWAN	2.4GHz WLAN Ant 4+3	5/6GHz WLAN Ant 7+3		
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)		
GSM850_Ant 0	Front	0.151	0.269	0.109	**0.420**	**0.260**
	Back	0.494	0.369	0.492	**0.863**	**0.986**
GSM1900_Ant 2	Front	0.409	0.269	0.109	**0.678**	**0.518**
	Back	0.607	0.369	0.492	**0.976**	**1.099**
WCDMA II_Ant 2	Front	0.588	0.269	0.109	**0.857**	**0.697**
	Back	0.898	0.369	0.492	**1.267**	**1.390**
WCDMA IV_Ant 2	Front	0.573	0.269	0.109	**0.842**	**0.682**
	Back	0.887	0.369	0.492	**1.256**	**1.379**
WCDMA V_Ant 0	Front	0.261	0.269	0.109	**0.530**	**0.370**
	Back	0.363	0.369	0.492	**0.732**	**0.855**
LTE Band 7_Ant 2	Front	0.619	0.269	0.109	**0.888**	**0.728**
	Back	0.903	0.369	0.492	**1.272**	**1.395**
LTE Band 12_Ant 0	Front	0.199	0.269	0.109	**0.468**	**0.308**
	Back	0.313	0.369	0.492	**0.682**	**0.805**
LTE Band 13_Ant 0	Front	0.318	0.269	0.109	**0.587**	**0.427**
	Back	0.341	0.369	0.492	**0.710**	**0.833**
LTE Band 14_Ant 0	Front	0.256	0.269	0.109	**0.525**	**0.365**
	Back	0.328	0.369	0.492	**0.697**	**0.820**
LTE Band 25_Ant 2	Front	0.641	0.269	0.109	**0.910**	**0.750**
	Back	0.746	0.369	0.492	**1.115**	**1.238**
LTE Band 26_Ant 0	Front	0.299	0.269	0.109	**0.568**	**0.408**
	Back	0.375	0.369	0.492	**0.744**	**0.867**
LTE Band 30_Ant 2	Front	0.591	0.269	0.109	**0.860**	**0.700**
	Back	0.900	0.369	0.492	**1.269**	**1.392**
LTE Band 41_Ant 2	Front	0.560	0.269	0.109	**0.829**	**0.669**
	Back	0.898	0.369	0.492	**1.267**	**1.390**
LTE Band 48_Ant 6	Front	0.434	0.269	0.109	**0.703**	**0.543**
	Back	0.891	0.369	0.492	**1.260**	**1.383**
LTE Band 66_Ant 2	Front	0.646	0.269	0.109	**0.915**	**0.755**
	Back	0.821	0.369	0.492	**1.190**	**1.313**
LTE Band 71_Ant 0	Front	0.245	0.269	0.109	**0.514**	**0.354**
	Back	0.324	0.369	0.492	**0.693**	**0.816**
FR1 n5_Ant 0	Front	0.229	0.269	0.109	**0.498**	**0.338**
	Back	0.404	0.369	0.492	**0.773**	**0.896**
FR1 n7_Ant 2	Front	0.491	0.269	0.109	**0.760**	**0.600**
	Back	0.895	0.369	0.492	**1.264**	**1.387**
FR1 n12_Ant 0	Front	0.230	0.269	0.109	**0.499**	**0.339**
	Back	0.249	0.369	0.492	**0.618**	**0.741**
FR1 n25_Ant 2	Front	0.689	0.269	0.109	**0.958**	**0.798**
	Back	0.717	0.369	0.492	**1.086**	**1.209**
FR1 n30_Ant 2	Front	0.579	0.269	0.109	**0.848**	**0.688**
	Back	0.898	0.369	0.492	**1.267**	**1.390**
FR1 n41_Ant 1	Front	0.471	0.269	0.109	**0.740**	**0.580**
	Back	0.891	0.369	0.492	**1.260**	**1.383**
FR1 n66_Ant 2	Front	0.584	0.269	0.109	**0.853**	**0.693**
	Back	0.860	0.369	0.492	**1.229**	**1.352**
FR1 n71_Ant 0	Front	0.268	0.269	0.109	**0.537**	**0.377**
	Back	0.288	0.369	0.492	**0.657**	**0.780**
FR1 n77_Ant 6	Front	0.445	0.269	0.109	**0.714**	**0.554**
	Back	0.797	0.369	0.492	**1.166**	**1.289**

<WWAN Index 6, WLAN Index 7>

WWAN Band	Exposure Position	1	5	7	1+5 Summed 1g SAR (W/kg)	1+7 Summed 1g SAR (W/kg)
		WWAN	2.4GHz WLAN Ant 4+3	5/6GHz WLAN Ant 7+3		
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)		
GSM850_Ant 1	Front	0.234	0.269	0.109	**0.503**	**0.343**
	Back	0.502	0.369	0.492	**0.871**	**0.994**
GSM1900_Ant 0	Front	0.390	0.269	0.109	**0.659**	**0.499**
	Back	0.688	0.369	0.492	**1.057**	**1.180**
WCDMA II_Ant 0	Front	0.397	0.269	0.109	**0.666**	**0.506**
	Back	0.903	0.369	0.492	**1.272**	**1.395**
WCDMA IV_Ant 0	Front	0.320	0.269	0.109	**0.589**	**0.429**
	Back	0.606	0.369	0.492	**0.975**	**1.098**
WCDMA V_Ant 1	Front	0.185	0.269	0.109	**0.454**	**0.294**
	Back	0.366	0.369	0.492	**0.735**	**0.858**
LTE Band 7_Ant 0	Front	0.470	0.269	0.109	**0.739**	**0.579**
	Back	0.680	0.369	0.492	**1.049**	**1.172**
LTE Band 12_Ant 1	Front	0.164	0.269	0.109	**0.433**	**0.273**
	Back	0.283	0.369	0.492	**0.652**	**0.775**
LTE Band 13_Ant 1	Front	0.164	0.269	0.109	**0.433**	**0.273**
	Back	0.305	0.369	0.492	**0.674**	**0.797**
LTE Band 14_Ant 1	Front	0.150	0.269	0.109	**0.419**	**0.259**
	Back	0.286	0.369	0.492	**0.655**	**0.778**
LTE Band 25_Ant 0	Front	0.340	0.269	0.109	**0.609**	**0.449**
	Back	0.903	0.369	0.492	**1.272**	**1.395**
LTE Band 26_Ant 1	Front	0.195	0.269	0.109	**0.464**	**0.304**
	Back	0.358	0.369	0.492	**0.727**	**0.850**
LTE Band 30_Ant 0	Front	0.340	0.269	0.109	**0.609**	**0.449**
	Back	0.529	0.369	0.492	**0.898**	**1.021**
LTE Band 41_Ant 0	Front	0.319	0.269	0.109	**0.588**	**0.428**
	Back	0.429	0.369	0.492	**0.798**	**0.921**
LTE Band 48_Ant 2	Front	0.159	0.269	0.109	**0.428**	**0.268**
	Back	0.132	0.369	0.492	**0.501**	**0.624**
LTE Band 66_Ant 0	Front	0.315	0.269	0.109	**0.584**	**0.424**
	Back	0.891	0.369	0.492	**1.260**	**1.383**
LTE Band 71_Ant 1	Front	0.129	0.269	0.109	**0.398**	**0.238**
	Back	0.238	0.369	0.492	**0.607**	**0.730**
FR1 n5_Ant 1	Front	0.196	0.269	0.109	**0.465**	**0.305**
	Back	0.382	0.369	0.492	**0.751**	**0.874**
FR1 n7_Ant 0	Front	0.249	0.269	0.109	**0.518**	**0.358**
	Back	0.528	0.369	0.492	**0.897**	**1.020**
FR1 n12_Ant 1	Front	0.146	0.269	0.109	**0.415**	**0.255**
	Back	0.290	0.369	0.492	**0.659**	**0.782**
FR1 n25_Ant 0	Front	0.567	0.269	0.109	**0.836**	**0.676**
	Back	0.903	0.369	0.492	**1.272**	**1.395**
FR1 n30_Ant 0	Front	0.457	0.269	0.109	**0.726**	**0.566**
	Back	0.489	0.369	0.492	**0.858**	**0.981**
FR1 n41_Ant 5	Front	0.338	0.269	0.109	**0.607**	**0.447**
	Back	0.637	0.369	0.492	**1.006**	**1.129**
FR1 n66_Ant 0	Front	0.611	0.269	0.109	**0.880**	**0.720**
	Back	0.846	0.369	0.492	**1.215**	**1.338**
FR1 n71_Ant 1	Front	0.130	0.269	0.109	**0.399**	**0.239**
	Back	0.243	0.369	0.492	**0.612**	**0.735**
FR1 n77_Ant 2	Front	0.166	0.269	0.109	**0.435**	**0.275**
	Back	0.230	0.369	0.492	**0.599**	**0.722**

<WWAN Index 6, WLAN Index 9, BT Index 4>

WWAN Band	Exposure Position	1	7	9	10	11	1+7+9 Summed 1g SAR (W/kg)	1+7+10 Summed 1g SAR (W/kg)	1+7+11 Summed 1g SAR (W/kg)
		WWAN	5/6GHz WLAN Ant 7+3	Bluetooth Ant 4	Bluetooth Ant 3	Bluetooth Ant 4+3			
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)			
GSM850_Ant 0	Front	0.151	0.097	0.006	0.077	0.108	**0.254**	**0.325**	**0.356**
	Back	0.494	0.439	0.162	0.141	0.131	**1.095**	**1.074**	**1.064**
GSM1900_Ant 2	Front	0.409	0.097	0.006	0.077	0.108	**0.512**	**0.583**	**0.614**
	Back	0.607	0.439	0.162	0.141	0.131	**1.208**	**1.187**	**1.177**
WCDMA II_Ant 2	Front	0.588	0.097	0.006	0.077	0.108	**0.691**	**0.762**	**0.793**
	Back	0.898	0.439	0.162	0.141	0.131	**1.499**	**1.478**	**1.468**
WCDMA IV_Ant 2	Front	0.573	0.097	0.006	0.077	0.108	**0.676**	**0.747**	**0.778**
	Back	0.887	0.439	0.162	0.141	0.131	**1.488**	**1.467**	**1.457**
WCDMA V_Ant 0	Front	0.261	0.097	0.006	0.077	0.108	**0.364**	**0.435**	**0.466**
	Back	0.363	0.439	0.162	0.141	0.131	**0.964**	**0.943**	**0.933**
LTE Band 7_Ant 2	Front	0.619	0.097	0.006	0.077	0.108	**0.722**	**0.793**	**0.824**
	Back	0.903	0.439	0.162	0.141	0.131	**1.504**	**1.483**	**1.473**
LTE Band 12_Ant 0	Front	0.199	0.097	0.006	0.077	0.108	**0.302**	**0.373**	**0.404**
	Back	0.313	0.439	0.162	0.141	0.131	**0.914**	**0.893**	**0.883**
LTE Band 13_Ant 0	Front	0.318	0.097	0.006	0.077	0.108	**0.421**	**0.492**	**0.523**
	Back	0.341	0.439	0.162	0.141	0.131	**0.942**	**0.921**	**0.911**
LTE Band 14_Ant 0	Front	0.256	0.097	0.006	0.077	0.108	**0.359**	**0.430**	**0.461**
	Back	0.328	0.439	0.162	0.141	0.131	**0.929**	**0.908**	**0.898**
LTE Band 25_Ant 2	Front	0.641	0.097	0.006	0.077	0.108	**0.744**	**0.815**	**0.846**
	Back	0.746	0.439	0.162	0.141	0.131	**1.347**	**1.326**	**1.316**
LTE Band 26_Ant 0	Front	0.299	0.097	0.006	0.077	0.108	**0.402**	**0.473**	**0.504**
	Back	0.375	0.439	0.162	0.141	0.131	**0.976**	**0.955**	**0.945**
LTE Band 30_Ant 2	Front	0.591	0.097	0.006	0.077	0.108	**0.694**	**0.765**	**0.796**
	Back	0.900	0.439	0.162	0.141	0.131	**1.501**	**1.480**	**1.470**
LTE Band 41_Ant 2	Front	0.560	0.097	0.006	0.077	0.108	**0.663**	**0.734**	**0.765**
	Back	0.898	0.439	0.162	0.141	0.131	**1.499**	**1.478**	**1.468**
LTE Band 48_Ant 6	Front	0.434	0.097	0.006	0.077	0.108	**0.537**	**0.608**	**0.639**
	Back	0.891	0.439	0.162	0.141	0.131	**1.492**	**1.471**	**1.461**
LTE Band 66_Ant 2	Front	0.646	0.097	0.006	0.077	0.108	**0.749**	**0.820**	**0.851**
	Back	0.821	0.439	0.162	0.141	0.131	**1.422**	**1.401**	**1.391**
LTE Band 71_Ant 0	Front	0.245	0.097	0.006	0.077	0.108	**0.348**	**0.419**	**0.450**
	Back	0.324	0.439	0.162	0.141	0.131	**0.925**	**0.904**	**0.894**
FR1 n5_Ant 0	Front	0.229	0.097	0.006	0.077	0.108	**0.332**	**0.403**	**0.434**
	Back	0.404	0.439	0.162	0.141	0.131	**1.005**	**0.984**	**0.974**
FR1 n7_Ant 2	Front	0.491	0.097	0.006	0.077	0.108	**0.594**	**0.665**	**0.696**
	Back	0.895	0.439	0.162	0.141	0.131	**1.496**	**1.475**	**1.465**
FR1 n12_Ant 0	Front	0.230	0.097	0.006	0.077	0.108	**0.333**	**0.404**	**0.435**
	Back	0.249	0.439	0.162	0.141	0.131	**0.850**	**0.829**	**0.819**
FR1 n25_Ant 2	Front	0.689	0.097	0.006	0.077	0.108	**0.792**	**0.863**	**0.894**
	Back	0.717	0.439	0.162	0.141	0.131	**1.318**	**1.297**	**1.287**
FR1 n30_Ant 2	Front	0.579	0.097	0.006	0.077	0.108	**0.682**	**0.753**	**0.784**
	Back	0.898	0.439	0.162	0.141	0.131	**1.499**	**1.478**	**1.468**
FR1 n41_Ant 1	Front	0.471	0.097	0.006	0.077	0.108	**0.574**	**0.645**	**0.676**
	Back	0.891	0.439	0.162	0.141	0.131	**1.492**	**1.471**	**1.461**
FR1 n66_Ant 2	Front	0.584	0.097	0.006	0.077	0.108	**0.687**	**0.758**	**0.789**
	Back	0.860	0.439	0.162	0.141	0.131	**1.461**	**1.440**	**1.430**
FR1 n71_Ant 0	Front	0.268	0.097	0.006	0.077	0.108	**0.371**	**0.442**	**0.473**
	Back	0.288	0.439	0.162	0.141	0.131	**0.889**	**0.868**	**0.858**
FR1 n77_Ant 6	Front	0.445	0.097	0.006	0.077	0.108	**0.548**	**0.619**	**0.650**
	Back	0.797	0.439	0.162	0.141	0.131	**1.398**	**1.377**	**1.367**

<WWAN Index 6, WLAN Index 9, BT Index 4>

WWAN Band	Exposure Position	1	7	9	10	11	1+7+9 Summed 1g SAR (W/kg)	1+7+10 Summed 1g SAR (W/kg)	1+7+11 Summed 1g SAR (W/kg)
		WWAN	5/6GHz WLAN Ant 7+3	Bluetooth Ant 4	Bluetooth Ant 3	Bluetooth Ant 4+3			
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)			
GSM850_Ant 1	Front	0.234	0.109	0.006	0.077	0.108	**0.349**	**0.420**	**0.451**
	Back	0.502	0.492	0.162	0.141	0.131	**1.156**	**1.135**	**1.125**
GSM1900_Ant 0	Front	0.390	0.109	0.006	0.077	0.108	**0.505**	**0.576**	**0.607**
	Back	0.688	0.492	0.162	0.141	0.131	**1.342**	**1.321**	**1.311**
WCDMA II_Ant 0	Front	0.397	0.109	0.006	0.077	0.108	**0.512**	**0.583**	**0.614**
	Back	0.903	0.492	0.162	0.141	0.131	**1.557**	**1.536**	**1.526**
WCDMA IV_Ant 0	Front	0.320	0.109	0.006	0.077	0.108	**0.435**	**0.506**	**0.537**
	Back	0.606	0.492	0.162	0.141	0.131	**1.260**	**1.239**	**1.229**
WCDMA V_Ant 1	Front	0.185	0.109	0.006	0.077	0.108	**0.300**	**0.371**	**0.402**
	Back	0.366	0.492	0.162	0.141	0.131	**1.020**	**0.999**	**0.989**
LTE Band 7_Ant 0	Front	0.470	0.109	0.006	0.077	0.108	**0.585**	**0.656**	**0.687**
	Back	0.680	0.492	0.162	0.141	0.131	**1.334**	**1.313**	**1.303**
LTE Band 12_Ant 1	Front	0.164	0.109	0.006	0.077	0.108	**0.279**	**0.350**	**0.381**
	Back	0.283	0.492	0.162	0.141	0.131	**0.937**	**0.916**	**0.906**
LTE Band 13_Ant 1	Front	0.164	0.109	0.006	0.077	0.108	**0.279**	**0.350**	**0.381**
	Back	0.305	0.492	0.162	0.141	0.131	**0.959**	**0.938**	**0.928**
LTE Band 14_Ant 1	Front	0.150	0.109	0.006	0.077	0.108	**0.265**	**0.336**	**0.367**
	Back	0.286	0.492	0.162	0.141	0.131	**0.940**	**0.919**	**0.909**
LTE Band 25_Ant 0	Front	0.340	0.109	0.006	0.077	0.108	**0.455**	**0.526**	**0.557**
	Back	0.903	0.492	0.162	0.141	0.131	**1.557**	**1.536**	**1.526**
LTE Band 26_Ant 1	Front	0.195	0.109	0.006	0.077	0.108	**0.310**	**0.381**	**0.412**
	Back	0.358	0.492	0.162	0.141	0.131	**1.012**	**0.991**	**0.981**
LTE Band 30_Ant 0	Front	0.340	0.109	0.006	0.077	0.108	**0.455**	**0.526**	**0.557**
	Back	0.529	0.492	0.162	0.141	0.131	**1.183**	**1.162**	**1.152**
LTE Band 41_Ant 0	Front	0.319	0.109	0.006	0.077	0.108	**0.434**	**0.505**	**0.536**
	Back	0.429	0.492	0.162	0.141	0.131	**1.083**	**1.062**	**1.052**
LTE Band 48_Ant 2	Front	0.159	0.109	0.006	0.077	0.108	**0.274**	**0.345**	**0.376**
	Back	0.132	0.492	0.162	0.141	0.131	**0.786**	**0.765**	**0.755**
LTE Band 66_Ant 0	Front	0.315	0.109	0.006	0.077	0.108	**0.430**	**0.501**	**0.532**
	Back	0.891	0.492	0.162	0.141	0.131	**1.545**	**1.524**	**1.514**
LTE Band 71_Ant 1	Front	0.129	0.109	0.006	0.077	0.108	**0.244**	**0.315**	**0.346**
	Back	0.238	0.492	0.162	0.141	0.131	**0.892**	**0.871**	**0.861**
FR1 n5_Ant 1	Front	0.196	0.109	0.006	0.077	0.108	**0.311**	**0.382**	**0.413**
	Back	0.382	0.492	0.162	0.141	0.131	**1.036**	**1.015**	**1.005**
FR1 n7_Ant 0	Front	0.249	0.109	0.006	0.077	0.108	**0.364**	**0.435**	**0.466**
	Back	0.528	0.492	0.162	0.141	0.131	**1.182**	**1.161**	**1.151**
FR1 n12_Ant 1	Front	0.146	0.109	0.006	0.077	0.108	**0.261**	**0.332**	**0.363**
	Back	0.290	0.492	0.162	0.141	0.131	**0.944**	**0.923**	**0.913**
FR1 n25_Ant 0	Front	0.567	0.109	0.006	0.077	0.108	**0.682**	**0.753**	**0.784**
	Back	0.903	0.492	0.162	0.141	0.131	**1.557**	**1.536**	**1.526**
FR1 n30_Ant 0	Front	0.457	0.109	0.006	0.077	0.108	**0.572**	**0.643**	**0.674**
	Back	0.489	0.492	0.162	0.141	0.131	**1.143**	**1.122**	**1.112**
FR1 n41_Ant 5	Front	0.338	0.109	0.006	0.077	0.108	**0.453**	**0.524**	**0.555**
	Back	0.637	0.492	0.162	0.141	0.131	**1.291**	**1.270**	**1.260**
FR1 n66_Ant 0	Front	0.611	0.109	0.006	0.077	0.108	**0.726**	**0.797**	**0.828**
	Back	0.846	0.492	0.162	0.141	0.131	**1.500**	**1.479**	**1.469**
FR1 n71_Ant 1	Front	0.130	0.109	0.006	0.077	0.108	**0.245**	**0.316**	**0.347**
	Back	0.243	0.492	0.162	0.141	0.131	**0.897**	**0.876**	**0.866**
FR1 n77_Ant 2	Front	0.166	0.109	0.006	0.077	0.108	**0.281**	**0.352**	**0.353**
	Back	0.241	0.492	0.162	0.141	0.131	**0.884**	**0.863**	**0.853**

<WWAN Index 6, WLAN Index 8>

WWAN Band	Exposure Position	1	5	7	1+5+7 Summed 1g SAR (W/kg)
		WWAN	2.4GHz WLAN Ant 4+3	5/6GHz WLAN Ant 7+3	
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	
GSM850_Ant 0	Front	0.151	0.133	0.097	**0.381**
	Back	0.494	0.196	0.439	**1.129**
GSM1900_Ant 2	Front	0.409	0.133	0.097	**0.639**
	Back	0.607	0.196	0.439	**1.242**
WCDMA II_Ant 2	Front	0.588	0.133	0.097	**0.818**
	Back	0.898	0.196	0.439	**1.533**
WCDMA IV_Ant 2	Front	0.573	0.133	0.097	**0.803**
	Back	0.887	0.196	0.439	**1.522**
WCDMA V_Ant 0	Front	0.261	0.133	0.097	**0.491**
	Back	0.363	0.196	0.439	**0.998**
LTE Band 7_Ant 2	Front	0.619	0.133	0.097	**0.849**
	Back	0.903	0.196	0.439	**1.538**
LTE Band 12_Ant 0	Front	0.199	0.133	0.097	**0.429**
	Back	0.313	0.196	0.439	**0.948**
LTE Band 13_Ant 0	Front	0.318	0.133	0.097	**0.548**
	Back	0.341	0.196	0.439	**0.976**
LTE Band 14_Ant 0	Front	0.256	0.133	0.097	**0.486**
	Back	0.328	0.196	0.439	**0.963**
LTE Band 25_Ant 2	Front	0.641	0.133	0.097	**0.871**
	Back	0.746	0.196	0.439	**1.381**
LTE Band 26_Ant 0	Front	0.299	0.133	0.097	**0.529**
	Back	0.375	0.196	0.439	**1.010**
LTE Band 30_Ant 2	Front	0.591	0.133	0.097	**0.821**
	Back	0.900	0.196	0.439	**1.535**
LTE Band 41_Ant 2	Front	0.560	0.133	0.097	**0.790**
	Back	0.898	0.196	0.439	**1.533**
LTE Band 48_Ant 6	Front	0.434	0.133	0.097	**0.664**
	Back	0.891	0.196	0.439	**1.526**
LTE Band 66_Ant 2	Front	0.646	0.133	0.097	**0.876**
	Back	0.821	0.196	0.439	**1.456**
LTE Band 71_Ant 0	Front	0.245	0.133	0.097	**0.475**
	Back	0.324	0.196	0.439	**0.959**
FR1 n5_Ant 0	Front	0.229	0.133	0.097	**0.459**
	Back	0.404	0.196	0.439	**1.039**
FR1 n7_Ant 2	Front	0.491	0.133	0.097	**0.721**
	Back	0.895	0.196	0.439	**1.530**
FR1 n12_Ant 0	Front	0.230	0.133	0.097	**0.460**
	Back	0.249	0.196	0.439	**0.884**
FR1 n25_Ant 2	Front	0.689	0.133	0.097	**0.919**
	Back	0.717	0.196	0.439	**1.352**
FR1 n30_Ant 2	Front	0.579	0.133	0.097	**0.809**
	Back	0.898	0.196	0.439	**1.533**
FR1 n41_Ant 1	Front	0.471	0.133	0.097	**0.701**
	Back	0.891	0.196	0.439	**1.526**
FR1 n66_Ant 2	Front	0.584	0.133	0.097	**0.814**
	Back	0.860	0.196	0.439	**1.495**
FR1 n71_Ant 0	Front	0.268	0.133	0.097	**0.498**
	Back	0.288	0.196	0.439	**0.923**
FR1 n77_Ant 6	Front	0.445	0.133	0.097	**0.675**
	Back	0.797	0.196	0.439	**1.432**

<WWAN Index 6, WLAN Index 8>

WWAN Band	Exposure Position	1	5	7	1+5+7 Summed 1g SAR (W/kg)
		WWAN	2.4GHz WLAN Ant 4+3	5/6GHz WLAN Ant 7+3	
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	
GSM850_Ant 1	Front	0.234	0.133	0.097	**0.464**
	Back	0.502	0.196	0.439	**1.137**
GSM1900_Ant 0	Front	0.390	0.133	0.097	**0.620**
	Back	0.688	0.196	0.439	**1.323**
WCDMA II_Ant 0	Front	0.397	0.133	0.097	**0.627**
	Back	0.903	0.196	0.439	**1.538**
WCDMA IV_Ant 0	Front	0.320	0.133	0.097	**0.550**
	Back	0.606	0.196	0.439	**1.241**
WCDMA V_Ant 1	Front	0.185	0.133	0.097	**0.415**
	Back	0.366	0.196	0.439	**1.001**
LTE Band 7_Ant 0	Front	0.470	0.133	0.097	**0.700**
	Back	0.680	0.196	0.439	**1.315**
LTE Band 12_Ant 1	Front	0.164	0.133	0.097	**0.394**
	Back	0.283	0.196	0.439	**0.918**
LTE Band 13_Ant 1	Front	0.164	0.133	0.097	**0.394**
	Back	0.305	0.196	0.439	**0.940**
LTE Band 14_Ant 1	Front	0.150	0.133	0.097	**0.380**
	Back	0.286	0.196	0.439	**0.921**
LTE Band 25_Ant 0	Front	0.340	0.133	0.097	**0.570**
	Back	0.903	0.196	0.439	**1.538**
LTE Band 26_Ant 1	Front	0.195	0.133	0.097	**0.425**
	Back	0.358	0.196	0.439	**0.993**
LTE Band 30_Ant 0	Front	0.340	0.133	0.097	**0.570**
	Back	0.529	0.196	0.439	**1.164**
LTE Band 41_Ant 0	Front	0.319	0.133	0.097	**0.549**
	Back	0.429	0.196	0.439	**1.064**
LTE Band 48_Ant 2	Front	0.159	0.133	0.097	**0.389**
	Back	0.132	0.196	0.439	**0.767**
LTE Band 66_Ant 0	Front	0.315	0.133	0.097	**0.545**
	Back	0.891	0.196	0.439	**1.526**
LTE Band 71_Ant 1	Front	0.129	0.133	0.097	**0.359**
	Back	0.238	0.196	0.439	**0.873**
FR1 n5_Ant 1	Front	0.196	0.133	0.097	**0.426**
	Back	0.382	0.196	0.439	**1.017**
FR1 n7_Ant 0	Front	0.249	0.133	0.097	**0.479**
	Back	0.528	0.196	0.439	**1.163**
FR1 n12_Ant 1	Front	0.146	0.133	0.097	**0.376**
	Back	0.290	0.196	0.439	**0.925**
FR1 n25_Ant 0	Front	0.567	0.133	0.097	**0.797**
	Back	0.903	0.196	0.439	**1.538**
FR1 n30_Ant 0	Front	0.457	0.133	0.097	**0.687**
	Back	0.489	0.196	0.439	**1.124**
FR1 n41_Ant 5	Front	0.338	0.133	0.097	**0.568**
	Back	0.637	0.196	0.439	**1.272**
FR1 n66_Ant 0	Front	0.611	0.133	0.097	**0.841**
	Back	0.846	0.196	0.439	**1.481**
FR1 n71_Ant 1	Front	0.130	0.133	0.097	**0.360**
	Back	0.243	0.196	0.439	**0.878**
FR1 n77_Ant 2	Front	0.166	0.133	0.097	**0.386**
	Back	0.230	0.196	0.439	**0.865**

<WWAN Index 6, BT Index 3>

WWAN Band	Exposure Position	1	9	10	11	1+9 Summed 1g SAR (W/kg)	1+10 Summed 1g SAR (W/kg)	1+11 Summed 1g SAR (W/kg)
		WWAN	Bluetooth Ant 4	Bluetooth Ant 3	Bluetooth Ant 4+3			
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)			
GSM850_Ant 0	Front	0.151	0.008	0.109	0.108	**0.159**	**0.260**	**0.259**
	Back	0.494	0.255	0.200	0.131	**0.749**	**0.694**	**0.625**
GSM1900_Ant 2	Front	0.409	0.008	0.109	0.108	**0.417**	**0.518**	**0.517**
	Back	0.607	0.255	0.200	0.131	**0.862**	**0.807**	**0.738**
WCDMA II_Ant 2	Front	0.588	0.008	0.109	0.108	**0.596**	**0.697**	**0.696**
	Back	0.898	0.255	0.200	0.131	**1.153**	**1.098**	**1.029**
WCDMA IV_Ant 2	Front	0.573	0.008	0.109	0.108	**0.581**	**0.682**	**0.681**
	Back	0.887	0.255	0.200	0.131	**1.142**	**1.087**	**1.018**
WCDMA V_Ant 0	Front	0.261	0.008	0.109	0.108	**0.269**	**0.370**	**0.369**
	Back	0.363	0.255	0.200	0.131	**0.618**	**0.563**	**0.494**
LTE Band 7_Ant 2	Front	0.619	0.008	0.109	0.108	**0.627**	**0.728**	**0.727**
	Back	0.903	0.255	0.200	0.131	**1.158**	**1.103**	**1.034**
LTE Band 12_Ant 0	Front	0.199	0.008	0.109	0.108	**0.207**	**0.308**	**0.307**
	Back	0.313	0.255	0.200	0.131	**0.568**	**0.513**	**0.444**
LTE Band 13_Ant 0	Front	0.318	0.008	0.109	0.108	**0.326**	**0.427**	**0.426**
	Back	0.341	0.255	0.200	0.131	**0.596**	**0.541**	**0.472**
LTE Band 14_Ant 0	Front	0.256	0.008	0.109	0.108	**0.264**	**0.365**	**0.364**
	Back	0.328	0.255	0.200	0.131	**0.583**	**0.528**	**0.459**
LTE Band 25_Ant 2	Front	0.641	0.008	0.109	0.108	**0.649**	**0.750**	**0.749**
	Back	0.746	0.255	0.200	0.131	**1.001**	**0.946**	**0.877**
LTE Band 26_Ant 0	Front	0.299	0.008	0.109	0.108	**0.307**	**0.408**	**0.407**
	Back	0.375	0.255	0.200	0.131	**0.630**	**0.575**	**0.506**
LTE Band 30_Ant 2	Front	0.591	0.008	0.109	0.108	**0.599**	**0.700**	**0.699**
	Back	0.900	0.255	0.200	0.131	**1.155**	**1.100**	**1.031**
LTE Band 41_Ant 2	Front	0.560	0.008	0.109	0.108	**0.568**	**0.669**	**0.668**
	Back	0.898	0.255	0.200	0.131	**1.153**	**1.098**	**1.029**
LTE Band 48_Ant 6	Front	0.434	0.008	0.109	0.108	**0.442**	**0.543**	**0.542**
	Back	0.891	0.255	0.200	0.131	**1.146**	**1.091**	**1.022**
LTE Band 66_Ant 2	Front	0.646	0.008	0.109	0.108	**0.654**	**0.755**	**0.754**
	Back	0.821	0.255	0.200	0.131	**1.076**	**1.021**	**0.952**
LTE Band 71_Ant 0	Front	0.245	0.008	0.109	0.108	**0.253**	**0.354**	**0.353**
	Back	0.324	0.255	0.200	0.131	**0.579**	**0.524**	**0.455**
FR1 n5_Ant 0	Front	0.229	0.008	0.109	0.108	**0.237**	**0.338**	**0.337**
	Back	0.404	0.255	0.200	0.131	**0.659**	**0.604**	**0.535**
FR1 n7_Ant 2	Front	0.491	0.008	0.109	0.108	**0.499**	**0.600**	**0.599**
	Back	0.895	0.255	0.200	0.131	**1.150**	**1.095**	**1.026**
FR1 n12_Ant 0	Front	0.230	0.008	0.109	0.108	**0.238**	**0.339**	**0.338**
	Back	0.249	0.255	0.200	0.131	**0.504**	**0.449**	**0.380**
FR1 n25_Ant 2	Front	0.689	0.008	0.109	0.108	**0.697**	**0.798**	**0.797**
	Back	0.717	0.255	0.200	0.131	**0.972**	**0.917**	**0.848**
FR1 n30_Ant 2	Front	0.579	0.008	0.109	0.108	**0.587**	**0.688**	**0.687**
	Back	0.898	0.255	0.200	0.131	**1.153**	**1.098**	**1.029**
FR1 n41_Ant 1	Front	0.471	0.008	0.109	0.108	**0.479**	**0.580**	**0.579**
	Back	0.891	0.255	0.200	0.131	**1.146**	**1.091**	**1.022**
FR1 n66_Ant 2	Front	0.584	0.008	0.109	0.108	**0.592**	**0.693**	**0.692**
	Back	0.860	0.255	0.200	0.131	**1.115**	**1.060**	**0.991**
FR1 n71_Ant 0	Front	0.268	0.008	0.109	0.108	**0.276**	**0.377**	**0.376**
	Back	0.288	0.255	0.200	0.131	**0.543**	**0.488**	**0.419**
FR1 n77_Ant 6	Front	0.445	0.008	0.109	0.108	**0.453**	**0.554**	**0.553**
	Back	0.797	0.255	0.200	0.131	**1.052**	**0.997**	**0.928**

WWAN Band	Exposure Position	1	9	10	11	1+9 Summed 1g SAR (W/kg)	1+10 Summed 1g SAR (W/kg)	1+11 Summed 1g SAR (W/kg)
		WWAN	Bluetooth Ant 4	Bluetooth Ant 3	Bluetooth Ant 4+3			
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)			
GSM850_Ant 1	Front	0.234	0.008	0.109	0.108	**0.242**	**0.343**	**0.342**
	Back	0.502	0.255	0.200	0.131	**0.757**	**0.702**	**0.633**
GSM1900_Ant 0	Front	0.390	0.008	0.109	0.108	**0.398**	**0.499**	**0.498**
	Back	0.688	0.255	0.200	0.131	**0.943**	**0.888**	**0.819**
WCDMA II_Ant 0	Front	0.397	0.008	0.109	0.108	**0.405**	**0.506**	**0.505**
	Back	0.903	0.255	0.200	0.131	**1.158**	**1.103**	**1.034**
WCDMA IV_Ant 0	Front	0.320	0.008	0.109	0.108	**0.328**	**0.429**	**0.428**
	Back	0.606	0.255	0.200	0.131	**0.861**	**0.806**	**0.737**
WCDMA V_Ant 1	Front	0.185	0.008	0.109	0.108	**0.193**	**0.294**	**0.293**
	Back	0.366	0.255	0.200	0.131	**0.621**	**0.566**	**0.497**
LTE Band 7_Ant 0	Front	0.470	0.008	0.109	0.108	**0.478**	**0.579**	**0.578**
	Back	0.680	0.255	0.200	0.131	**0.935**	**0.880**	**0.811**
LTE Band 12_Ant 1	Front	0.164	0.008	0.109	0.108	**0.172**	**0.273**	**0.272**
	Back	0.283	0.255	0.200	0.131	**0.538**	**0.483**	**0.414**
LTE Band 13_Ant 1	Front	0.164	0.008	0.109	0.108	**0.172**	**0.273**	**0.272**
	Back	0.305	0.255	0.200	0.131	**0.560**	**0.505**	**0.436**
LTE Band 14_Ant 1	Front	0.150	0.008	0.109	0.108	**0.158**	**0.259**	**0.258**
	Back	0.286	0.255	0.200	0.131	**0.541**	**0.486**	**0.417**
LTE Band 25_Ant 0	Front	0.340	0.008	0.109	0.108	**0.348**	**0.449**	**0.448**
	Back	0.903	0.255	0.200	0.131	**1.158**	**1.103**	**1.034**
LTE Band 26_Ant 1	Front	0.195	0.008	0.109	0.108	**0.203**	**0.304**	**0.303**
	Back	0.358	0.255	0.200	0.131	**0.613**	**0.558**	**0.489**
LTE Band 30_Ant 0	Front	0.340	0.008	0.109	0.108	**0.348**	**0.449**	**0.448**
	Back	0.529	0.255	0.200	0.131	**0.784**	**0.729**	**0.660**
LTE Band 41_Ant 0	Front	0.319	0.008	0.109	0.108	**0.327**	**0.428**	**0.427**
	Back	0.429	0.255	0.200	0.131	**0.684**	**0.629**	**0.560**
LTE Band 48_Ant 2	Front	0.159	0.008	0.109	0.108	**0.167**	**0.268**	**0.267**
	Back	0.132	0.255	0.200	0.131	**0.387**	**0.332**	**0.263**
LTE Band 66_Ant 0	Front	0.315	0.008	0.109	0.108	**0.323**	**0.424**	**0.423**
	Back	0.891	0.255	0.200	0.131	**1.146**	**1.091**	**1.022**
LTE Band 71_Ant 1	Front	0.129	0.008	0.109	0.108	**0.137**	**0.238**	**0.237**
	Back	0.238	0.255	0.200	0.131	**0.493**	**0.438**	**0.369**
FR1 n5_Ant 1	Front	0.196	0.008	0.109	0.108	**0.204**	**0.305**	**0.304**
	Back	0.382	0.255	0.200	0.131	**0.637**	**0.582**	**0.513**
FR1 n7_Ant 0	Front	0.249	0.008	0.109	0.108	**0.257**	**0.358**	**0.357**
	Back	0.528	0.255	0.200	0.131	**0.783**	**0.728**	**0.659**
FR1 n12_Ant 1	Front	0.146	0.008	0.109	0.108	**0.154**	**0.255**	**0.254**
	Back	0.290	0.255	0.200	0.131	**0.545**	**0.490**	**0.421**
FR1 n25_Ant 0	Front	0.567	0.008	0.109	0.108	**0.575**	**0.676**	**0.675**
	Back	0.903	0.255	0.200	0.131	**1.158**	**1.103**	**1.034**
FR1 n30_Ant 0	Front	0.457	0.008	0.109	0.108	**0.465**	**0.566**	**0.565**
	Back	0.489	0.255	0.200	0.131	**0.744**	**0.689**	**0.620**
FR1 n41_Ant 5	Front	0.338	0.008	0.109	0.108	**0.346**	**0.447**	**0.446**
	Back	0.637	0.255	0.200	0.131	**0.892**	**0.837**	**0.768**
FR1 n66_Ant 0	Front	0.611	0.008	0.109	0.108	**0.619**	**0.720**	**0.719**
	Back	0.846	0.255	0.200	0.131	**1.101**	**1.046**	**0.977**
FR1 n71_Ant 1	Front	0.130	0.008	0.109	0.108	**0.138**	**0.239**	**0.238**
	Back	0.243	0.255	0.200	0.131	**0.498**	**0.443**	**0.374**
FR1 n77_Ant 2	Front	0.166	0.008	0.109	0.108	**0.174**	**0.275**	**0.274**
	Back	0.230	0.255	0.200	0.131	**0.507**	**0.452**	**0.383**

14.4 Product Specific Exposure Conditions

WWAN Band	Exposure Position	1 WWAN 10g SAR (W/kg)	7 WLAN5GHz Ant 7+3 10g SAR (W/kg)	1+7 Summed 10g SAR (W/kg)
LTE Band 66_Ant 2	Front		0.216	**0.216**
	Back		0.993	**0.993**
	Left side		0.399	**0.399**
	Right side		0.166	**0.166**
	Top side		0.219	**0.219**
	Bottom side	2.965		**2.965**
FR1 n41_Ant 1	Front		0.216	**0.216**
	Back		0.993	**0.993**
	Left side		0.399	**0.399**
	Right side		0.166	**0.166**
	Top side		0.219	**0.219**
	Bottom side	2.965		**2.965**

WWAN Band	Exposure Position	1 WWAN 10g SAR (W/kg)	7 WLAN5GHz Ant 7+3 10g SAR (W/kg)	9 Bluetooth Ant 4 10g SAR (W/kg)	10 Bluetooth Ant 3 10g SAR (W/kg)	11 Bluetooth Ant 4+3 10g SAR (W/kg)	1+7+9 Summed 10g SAR (W/kg)	1+7+10 Summed 10g SAR (W/kg)	1+7+11 Summed 10g SAR (W/kg)
LTE Band 66_Ant 2	Front		0.193				**0.193**	**0.193**	**0.193**
	Back		0.808				**0.808**	**0.808**	**0.808**
	Left side		0.356				**0.356**	**0.356**	**0.356**
	Right side		0.148				**0.148**	**0.148**	**0.148**
	Top side		0.184				**0.184**	**0.184**	**0.184**
	Bottom side	2.965					**2.965**	**2.965**	**2.965**
FR1 n41_Ant 1	Front		0.193				**0.193**	**0.193**	**0.193**
	Back		0.808				**0.808**	**0.808**	**0.808**
	Left side		0.356				**0.356**	**0.356**	**0.356**
	Right side		0.148				**0.148**	**0.148**	**0.148**
	Top side		0.184				**0.184**	**0.184**	**0.184**
	Bottom side	2.965					**2.965**	**2.965**	**2.965**

WWAN Band	Exposure Position	1 WWAN 10g SAR (W/kg)	5 WLAN2.4GHz Ant 4+3 10g SAR (W/kg)	7 WLAN5GHz Ant 7+3 10g SAR (W/kg)	1+5+7 Summed 10g SAR (W/kg)
LTE Band 66_Ant 2	Front			0.193	**0.193**
	Back			0.808	**0.808**
	Left side			0.356	**0.356**
	Right side			0.148	**0.148**
	Top side			0.184	**0.184**
	Bottom side	2.965			**2.965**
FR1 n41_Ant 1	Front			0.193	**0.193**
	Back			0.808	**0.808**
	Left side			0.356	**0.356**
	Right side			0.148	**0.148**
	Top side			0.184	**0.184**
	Bottom side	2.965			**2.965**

15. Simultaneous Transmission Analysis for PD

Config	TX Mode	Capable simultaneous TX Configurations
1	WWAN ON + FR2 (Cellular on)	WiFi 5GHz/6E MIMO (Ant 3+Ant 7) + Bluetooth(Ant 4)
2		WiFi 5GHz/6E MIMO (Ant 3+Ant 7) + Bluetooth(Ant 3)
3		WiFi 5GHz/6E MIMO (Ant 3+Ant 7) + Bluetooth(Ant 4+3)
4		WiFi 5GHz/6E MIMO (Ant 3+Ant 7)
5		WiFi 2.4GHz MIMO (Ant 4+3)
6		Bluetooth(Ant 4) (BDR/EDR/BLE)
7		Bluetooth(Ant 3) (BDR/EDR/BLE)
8		Bluetooth(Ant 4+3) (BDR/EDR)
9		WiFi 2.4GHz MIMO (Ant 4+3) + WiFi 5GHz/6E MIMO (Ant 3+Ant 7)

General Note:

1. The FR2 PD results refer to Sporton Report No.: FA121931-04E are using for Sim-Tx analysis
2. The worst case WLAN/BT SAR results between report no.: FA121931-04C and FA121931-24B are using for Sim-Tx analysis with other transmitters. Therefore, summations represent the absolute worst cases for Sim-Tx analysis for this device.
3. For LTE+5GNR+WiFi+BT, due to the TAS control, simultaneous transmission compliance can be assessed on LTE+WiFi/BT and 5GNR+WiFi/BT, and the validation of the time-averaging algorithm and compliance under the Tx varying transmission scenario for WWAN technologies are reported in Part 2 report.For 5GNR FR2 with WiFi, total exposure ration is calculated

The [∑ of (the highest measured or estimated SAR for each standalone antenna configuration, adjusted for maximum tune-up tolerance) / 1.6 W/kg] + [∑ of MPE ratios] is ≤ 1.0.

15.1 5G FR2 + LTE + WLAN + BT Sim-Tx analysis

In 5G NR + LTE + WLAN + BT simultaneous transmission, 5G NR and LTE transmission are managed and controlled by Samsung S.LSI TAS feature, while the RF exposure from WLAN and BT radios is managed using legacy approach, i.e., through a fixed power back-off if needed.

Since WLAN and BT do not employ time-averaging, 1gSAR and 10gSAR measurement for WLAN and BT need to be conducted at their corresponding rated power following current FCC test procedures to determine reported SAR values.

TAS managed and controlled for Multi-RATs (5GNR + LTE)

The power ratio factors are g_1 and g_2 for LTE and NR respectively. The main purpose of these power ratio factors is to split the available SAR budget among different RATs, so $g_1 + g_2 \leq 1$. The value of g_1 is computed based on the need of the anchor (LTE) and can be changed if the anchor changes its power request. Based on the SAR Budget portion allocated to the anchor, the value of g_2 will be computed. At steady state (where all RATs are being on for a while), the allocated power ratio factors will guarantee that the total exposure ratio never exceeds the highest exposure of either one.

The reported time-averaged PD is applicable for the worst-surface of the device, and for other surfaces the reported PD is determined as below

1. Calculate ratio of simulated PD for desired surface to simulated PD of worst surface for a given beam

2. Repeat 1 to obtain ratios for all supported beams, and determine maximum ratio

3. Repeat 1~2 to obtain the corresponding worst-case PD for other surfaces which are needed for TER analysis.

- *For body-worn and hotspot scenario, if SAR was measured at 15mm and 10mm, respectively, then the worst-case PD at 15mm and 10mm separation distance should be determined per surface as*
  - *15mm_worst-case_PD = PD_ratio_15mm_to_2mm * reported* time-averaged PD
  - *10mm_worst-case_PD = PD_ratio_10mm_to_2mm * reported time-averaged PD*

<Product Specific Exposure Condition>

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WWAN Band		Exposure Position	1	7	Reported 10g SAR/4.0 + PD/10 Summation Total Exposure ratio
			PD	WLAN5GHz Ant 3+7	**1+7 Summed**
			4cm^2(W/m^2)	10g SAR (W/kg)	
n258	Plane B Sub-Module	Front	3.020	0.216	**0.356**
		Back	7.500	0.993	**0.998**
		Left side	0.410	0.399	**0.141**
		Right side	2.170	0.166	**0.259**
		Top side	3.570	0.219	**0.412**
		Bottom side			**0.000**
	Plane A Sub-Module	Front	4.010	0.216	**0.455**
		Back	4.800	0.993	**0.728**
		Left side	0.310	0.399	**0.131**
		Right side	2.160	0.166	**0.258**
		Top side	7.500	0.219	**0.805**
		Bottom side			**0.000**
n260	Plane B Sub-Module	Front	1.710	0.216	**0.225**
		Back	7.500	0.993	**0.998**
		Left side	0.310	0.399	**0.131**
		Right side	1.770	0.166	**0.219**
		Top side	2.730	0.219	**0.328**
		Bottom side			**0.000**
	Plane A Sub-Module	Front	4.630	0.216	**0.517**
		Back	3.640	0.993	**0.612**
		Left side	0.180	0.399	**0.118**
		Right side	1.680	0.166	**0.210**
		Top side	7.500	0.219	**0.805**
		Bottom side			**0.000**
n261	Plane B Sub-Module	Front	2.810	0.216	**0.335**
		Back	7.500	0.993	**0.998**
		Left side	0.280	0.399	**0.128**
		Right side	1.390	0.166	**0.181**
		Top side	3.440	0.219	**0.399**
		Bottom side			**0.000**
	Plane A Sub-Module	Front	3.820	0.216	**0.436**
		Back	4.070	0.993	**0.655**
		Left side	0.370	0.399	**0.137**
		Right side	1.930	0.166	**0.235**
		Top side	7.500	0.219	**0.805**
		Bottom side			**0.000**

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WWAN Band		Exposure Position	1	7	Reported 10g SAR/4.0 + PD/10 Summation Total Exposure ratio
			PD	WLAN5GHz Ant 3+7	**1+7 Summed**
			4cm^2(W/m^2)	10g SAR (W/kg)	
n258	Plane B Sub-Module	Front	3.020	0.193	**0.350**
		Back	7.500	0.808	**0.952**
		Left side	0.410	0.356	**0.130**
		Right side	2.170	0.148	**0.254**
		Top side	3.570	0.184	**0.403**
		Bottom side			**0.000**
	Plane A Sub-Module	Front	4.010	0.193	**0.449**
		Back	4.800	0.808	**0.682**
		Left side	0.310	0.356	**0.120**
		Right side	2.160	0.148	**0.253**
		Top side	7.500	0.184	**0.796**
		Bottom side			**0.000**
n260	Plane B Sub-Module	Front	1.710	0.193	**0.219**
		Back	7.500	0.808	**0.952**
		Left side	0.310	0.356	**0.120**
		Right side	1.770	0.148	**0.214**
		Top side	2.730	0.184	**0.319**
		Bottom side			**0.000**
	Plane A Sub-Module	Front	4.630	0.193	**0.511**
		Back	3.640	0.808	**0.566**
		Left side	0.180	0.356	**0.107**
		Right side	1.680	0.148	**0.205**
		Top side	7.500	0.184	**0.796**
		Bottom side			**0.000**
n261	Plane B Sub-Module	Front	2.810	0.193	**0.329**
		Back	7.500	0.808	**0.952**
		Left side	0.280	0.356	**0.117**
		Right side	1.390	0.148	**0.176**
		Top side	3.440	0.184	**0.390**
		Bottom side			**0.000**
	Plane A Sub-Module	Front	3.820	0.193	**0.430**
		Back	4.070	0.808	**0.609**
		Left side	0.370	0.356	**0.126**
		Right side	1.930	0.148	**0.230**
		Top side	7.500	0.184	**0.796**
		Bottom side			**0.000**

Test Engineer： Mood Huang and Carter Jhuang

16. Uncertainty Assessment

Per KDB 865664 D01 SAR measurement 100MHz to 6GHz, when the highest measured 1-g SAR within a frequency band is < 1.5 W/kg and the measured 10-g SAR within a frequency band is < 3.75 W/kg. The expanded SAR measurement uncertainty must be ≤ 30%, for a confidence interval of k = 2. If these conditions are met, extensive SAR measurement uncertainty analysis described in IEEE Std 1528-2013 is not required in SAR reports submitted for equipment approval. For this device, the highest measured 1-g SAR is less 1.5W/kg and highest measured 10-g SAR is less 3.75W/kg. Therefore, the measurement uncertainty table is not required in this report.

Declaration of Conformity:
The test results with all measurement uncertainty excluded is presented in accordance with the regulation limits or requirements declared by manufacturers.
Comments and Explanations:
The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

17. References

[1] FCC 47 CFR Part 2 “Frequency Allocations and Radio Treaty Matters; General Rules and Regulations”

[2] ANSI/IEEE Std. C95.1-1992, “IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz”, September 1992

[3] IEEE Std. 1528-2013, “IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques”, Sep 2013

[4] SPEAG DASY System Handbook

[5] FCC KDB 248227 D01 v02r02, “SAR Guidance for IEEE 802.11 (WiFi) Transmitters”, Oct 2015.

[6] FCC KDB 447498 D01 v06, “Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies”, Oct 2015

[7] FCC KDB 648474 D04 v01r03, “SAR Evaluation Considerations for Wireless Handsets”, Oct 2015.

[8] FCC KDB 941225 D01 v03r01, “3G SAR MEAUREMENT PROCEDURES”, Oct 2015

[9] FCC KDB 941225 D05 v02r05, “SAR Evaluation Considerations for LTE Devices”, Dec 2015

[10] FCC KDB 941225 D05A v01r02, “Rel. 10 LTE SAR Test Guidance and KDB Inquiries”, Oct 2015

[11] FCC KDB 941225 D06 v02r01, "SAR Evaluation Procedures for Portable Devices with Wireless Router Capabilities", Oct 2015.

[12] FCC KDB 941225 D07 v01r02, " SAR Evaluation Procedures for UMPC Mini-Tablet Devices", Oct 2015.

[13] FCC KDB 865664 D01 v01r04, "SAR Measurement Requirements for 100 MHz to 6 GHz", Aug 2015.

[14] FCC KDB 865664 D02 v01r02, “RF Exposure Compliance Reporting and Documentation Considerations” Oct 2015.